19
CHAPTER

TIME & WORK

EXERCISE

TYPE - A

1. A can do a piece of work in 6 days and B in 9 days. How many days will both take together to complete the work?
(a) 7.5 days (b) 5.4 days
(c) 3.6 days (d) 3 days

2. A can do a piece of work in 15 days and B in 20 days. If they together work on it for 4 days, then the fraction of the work that is left is:
(a) $\frac{8}{15}$ (b) $\frac{7}{15}$
(c) $\frac{1}{4}$ (d) $\frac{1}{10}$

3. A can cultivate $\frac{2}{5}$th of a land in 6 days and B can cultivate $\frac{1}{3}$rd of the same land in 10 days. Working together A and B can cultivate $\frac{4}{5}$th of the land in;
(a) 4 days (b) 5 days
(c) 8 days (d) 10 days

4. A can finish a piece of work in 18 days and B can do the same work in half of the time taken by A. Then working together what part of the same work they can finish in a day?
(a) $\frac{1}{6}$ (b) $\frac{2}{5}$
(c) $\frac{1}{9}$ (d) $\frac{2}{7}$

5. A, B and C can complete a piece of work in 24,6 and 12 days respectively. Working together, they will complete the same work in
(a) $\frac{1}{4}$ day (b) $\frac{7}{24}$ day
(c) $3\frac{3}{7}$ days (d) 4 days

6. A and B can do a piece of work in 12 days. B and C in 15 days and C and A in 20 days. If A , B and C work together, they will complete the work in :
(a) 5 days (b) $7\frac{5}{6}$ days
(c) 10 days (d) $15\frac{2}{3}$ days

7. A and B can do a piece of work in 72 days, B and C can do it in 120 days and A and C can do it in 90 days. In how many days all three together can do the work?
(a) 80 days (b) 100 days
(c) 60 days (d) 150 days

8. A man, a woman and a boy can complete a job in 3,4 and 12 days respectively. How many boys must assist 1 man and 1 woman to complete the job in $\frac{1}{4}$ of a day?
(a) 1 (b) 4
(c) 19 (d) 41

9. A and B can do a piece of work in 10 days, B and C in 15 days and C and A in 20 days, C alone can do the work in :
(a) 60 days (b) 120 days
(c) 80 days (d) 30 days

10. A can do a piece of work in 4 hours; B and C can do it in 3 hours. A and C can do it in 2 hours. How long will B alone take to do it?
(a) 10 hours (b) 12 hours
(c) 8 hours (d) 24 hours

11. A and B can complete a piece of work in 15 days and 10 days respectively. They contracted to complete the work for ₹ 30,000. The share of A in the contracted money will be:
(a) ₹ 18,000 (b) ₹ 16,500
(c) ₹ 12,500 (d) ₹ 12,000

12. A can do $\frac{1}{2}$ of a piece of work in 5 days, B can do $\frac{3}{5}$ of the same work in 9 days and C can do $\frac{2}{3}$ of that work in 8 days. In how many days can three of them together do the work ?
(a) 3 days (b) 5 days
(c) $4\frac{1}{2}$ days (d) 4 days

13. A man and a boy received ₹ 800 as wages for 5 days for the work they did together. The man's efficiency is twice of the boy. What are the daily wages of the boy?
(a) ₹ $53\frac{1}{3}$ (b) ₹ $56\frac{1}{3}$
(c) ₹ $44\frac{1}{3}$ (d) ₹ $40\frac{1}{3}$

14. A daily-wages labourer was engaged for a certain number of days for ₹ 5,750; but being absent on some of those days he was paid only ₹ 5,000. What were his maximum possible daily wages?
(a) ₹ 125 (b) ₹ 250
(c) ₹ 375 (d) ₹ 500

15. A does $\frac{4}{5}$ of a piece of work in 20 days; then he calls B and they finish the remaining work in 3 days. How long B alone will take to do whole work ?
(a) $37\frac{1}{2}$ days (b) 37 days
(c) 40 days (d) 23 days

16. A does $\frac{7}{10}$ part of work in 15 days. After that he completes the remaining work in 4 days with the help of B. In how many days will A and B together do the same work?

(a) $10\frac{1}{3}$ days (b) $12\frac{2}{3}$ days

(c) $13\frac{1}{3}$ days (d) $8\frac{1}{4}$ days

17. A alone can complete a piece of work in 12 days. A and B together can complete it in 8 days. How long will B alone take to complete the work?

(a) 24 days (b) 18 days

(c) 16 days (d) 20 days

18. A alone can do a piece of work in 6 days and B alone in 8 days, A and B undertook to do it for ₹ 3200. With the help of C they completed the work in 3 days. How much is to be paid to C?

(a) ₹ 375 (b) ₹ 400

(c) ₹ 600 (d) ₹ 800

19. A and B together can do a piece of work in 8 days, B and C together in 10 days, while C and A together in 6 days, if they all work together the work will be completed in:

(a) $3\frac{3}{4}$ days (b) $3\frac{3}{7}$ days

(c) $5\frac{5}{47}$ days (d) $4\frac{4}{9}$ days

20. A and B together can complete a piece of work in 8 days, B alone can complete that work in 12 days. B alone worked for four days. After that how long will A alone takes to complete the work?

(a) 15 days (b) 18 days

(c) 16 days (d) 20 days

21. A and B together can complete a piece of work in 8 days and B and C together in 12 days. All of the three together can complete the work in 6 days. A and C together complete the work in:

(a) 8 days (b) 10 days

(c) 12 days (d) 20 days

22. A can complete $\frac{2}{3}$ of a work in 8 days and B can complete $\frac{3}{5}$ of the work in 6 days. In how many days both A and B together can complete the work ?

(a) 3 days (b) $5\frac{5}{11}$ days

(c) $3\frac{3}{4}$ days (d) $2\frac{7}{8}$ days

23. P can complete $\frac{1}{4}$ of a work in 10 days, Q can complete 40% of the same work in 145 days. R, completes $\frac{1}{3}$ of the work in 13 days and S, $\frac{1}{6}$ of the work in 7 days. Who will be able to complete the work first?

(a) P (b) Q

(c) R (d) S

24. Two men undertook to do a job for ₹ 1400. One of them can do it alone in 7 days, and the other in 8 days. With the assistance of a boy they together completed the work in 3 days. How much money will the boy get?

(a) ₹ 300 (b) ₹ 325

(c) ₹ 275 (d) ₹ 250

25. While working 7 hours a day, A alone can complete a piece of work in 6 days and B alone in 8 days. In what time would they complete it together working 8 hours a day?

(a) 3 days (b) 4 days

(c) 2.5 days (d) 3.6 days

26. Working 5 hours a day, A can complete a piece of work in 8 days and working 6 hours a day, B can complete the same work in 10 days. Working 8 hours a day, they both can complete the work in

(a) 3 days (b) 4 days

(c) 4.5 days (d) 5.4 days

27. A man, a woman and a boy can complete a piece of work in 20 days, 30 days and 60 days respectively. How many boys must assist 2 men and 8 women so as to complete the work in 2 days?

(a) 8 (b) 12

(c) 4 (d) 6

28. One man and one woman together can complete a piece of work in 8 days. A man alone can complete the work in 10 days. In how many days can one woman alone complete the work?

(a) $\frac{140}{9}$ days (b) 30 days

(c) 40 days (d) 42 days

29. A can do a piece of work in 20 days and B in 40 days. If they work together for 5 days, then the fraction of the work that is left is

(a) $\frac{5}{8}$ (b) $\frac{8}{15}$

(c) $\frac{7}{15}$ (d) $\frac{1}{10}$

30. A sum of money is sufficient to pay A' s wages for 21 days and B's wages for 28 days. The same money is sufficient to pay the wages of both for:

(a) $12\frac{1}{4}$ days (b) 14 days

(c) $24\frac{1}{2}$ days (d) 12 days

31. A, B and C together earn ₹ 150 per day while A and C together earn ₹ 94 and B and C together earn ₹ 76. The daily earning of 'C' is

(a) ₹ 56 (b) ₹ 20

(c) ₹ 34 (d) ₹ 75

32. A work can be completed by P and Q in 12 days. Q and R in 15 days. R and P in 20 days. In how many days P alone can finish the work?

(a) 10 days (b) 20 days

(c) 30 days (d) 60 days

33. A and B working together can do a piece of work in $4\frac{1}{2}$ hours. B and C working together can do it in 3 hours. C and A working together can do it in $2\frac{1}{4}$ hours. All of them begin the work at the same time. Find how much time they will take to finish the piece of work .

(a) 3 hours (b) 2 hours

(c) 2.5 hours (d) 3.25 hours

34. A and B can do a piece of work in 8 days, B and C can do it in 24 days, while C and A can do it in $8\frac{4}{7}$ days, in how many days can C do it alone?
(a) 60 days (b) 40 days
(c) 30 days (d) 10 days

35. A and B can do a piece of work in 72 days, B and C can do it in 120 days, and A and C can do it in 90 days. When A, B and C work together, how much work is finished by them in 3 days.
(a) $\frac{1}{40}$ (b) $\frac{1}{30}$
(c) $\frac{1}{20}$ (d) $\frac{1}{10}$

36. A skilled, a half skilled and an unskilled labourer work for 7, 8 and 10 days respectively and they together get ₹ 369 for their work. If the ratio of their each day's work is $\frac{1}{3} : \frac{1}{4} : \frac{1}{6}$, then how much does the trained labourer get (in rupees)?
(a) 164 (b) 102.50
(c) 201.50 (d) 143.50

37. A can complete a piece of work in 'm' days and B can complete it in 'n' days. How many days will it take to complete the work if both A and B work together?
(a) (m + n) days (b) $\left(\frac{1}{m} \times \frac{1}{n}\right)$ days
(c) $\left(\frac{m+n}{mn}\right)$ days (d) $\left(\frac{mn}{m+n}\right)$ days

38. A, B and C are employed to do a piece of work for ₹ 575. A and C are supposed to finish $\frac{19}{23}$ of the work together. Amount shall be paid to B is
(a) ₹ 210 (b) ₹ 100
(c) ₹ 200 (d) ₹ 475

39. A and B together can complete a piece of work in 12 days. A alone can complete in 20 days. If B does the work only half a day daily, then in how many days A and B together will complete the work?
(a) 10 days (b) 20 days
(c) 11 days (d) 15 days

40. A can do a piece of work in 20 days which B can do in 12 days. B worked at it for 9 days, A can finish the remaining work in
(a) 5 days (b) 7 days
(c) 11 days (d) 3 days

41. Two men undertake a job for ₹ 960. They can complete it in 16 days and 24 days respectively. They work along with a third man and take 8 days to complete it. Then the share of the third man should be
(a) ₹ 155 (b) ₹ 165
(c) ₹ 160 (d) ₹ 150

42. If there is a reduction in the number of workers in a factory in the ratio 15 : 11 and an increment in their wages in the rate 22 : 25, then the ratio by which the total wages of the workers should be decreased is
(a) 6 : 5 (b) 5 : 6
(c) 3 : 7 (d) 3 : 5

43. Stanic and Paul take a piece of work for ₹ 28,800. Stanic alone could do it in 36 days, the other in 48 days. With the assistance of an expert, they finish it in 12 days. How much remuneration the expert should get?
(a) ₹ 10000 (b) ₹ 18000
(c) ₹ 16000 (d) ₹ 12000

44. If x can finish a job in 4 hours and y can finish the same job in 8 hours independently, then they together will finish the job in
(a) 140 minutes
(b) 120 minutes
(c) 160 minutes
(d) 150 minutes

(SSC CGL Mains 12-4-15)

45. x does 1/4 of a job in 6 days. y completes rest of the job in 12 days. Then x and y could complete the job together in
(a) 9 days (b) $8\frac{1}{8}$ days
(c) $9\frac{3}{5}$ days (d) $7\frac{1}{3}$ days

(SSC CGL Mains 12-4-15)

46. Janardan completes $\frac{2}{3}$ of his work in 10 days. Time he will take to complete $\frac{3}{5}$ of the same work, is
(a) 4 days (b) 8 days
(c) 6 days (d) 9 days

(SSC LDC 20-12-2015, Morning)

47. A can do a piece of work in 12 days while B alone can do it in 15 days. With the help of C they can finish it in 5 days. If they are paid ₹ 960 for the whole work. How much money A gets?
(a) ₹ 480 (b) ₹ 240
(c) ₹ 320 (d) ₹ 400

48. Three persons undertake to complete a piece of work for ₹ 1200. The first person can complete the work in 8 days, second person in 12 days and third person in 16 days. They complete the work with the help of a fourth person in 3 days. What does the fourth person get?
(a) ₹ 180 (b) ₹ 200
(c) ₹ 225 (d) ₹ 250

49. A can do a piece of work in 16 days and B in 24 days. They take the help of C and they all together finish the work in 6 days. If the total remuneration for the work is ₹ 400. The amount (in rupees) each will receive, in proportion, to do the work is
(a) A = 150, B = 100, C = 150
(b) A = 100, B = 150, C = 150
(c) A = 100, B = 150, C = 250
(d) A = 200, B = 150, C = 150

50. A and B can do a given piece of work in 8 days, B and C can do the same work in 12 days and A, B, C complete it in 6 days. Number of days required to finish the work by A and C is
(a) 24 days (b) 8 days
(c) 16 days (d) 12 days

(SSC CGL Mains 25-10-2015)

51. In two days A, B and C together can finish $\frac{1}{2}$ of a work and in another 2 days B and C together can finish $\frac{3}{10}$ part of the work. Then A alone can complete the whole work in.
(a) 15 days (b) 10 days
(c) 12 days (d) 14 days

(SSC LDC 20-12-2015, Evening)

52. A can do a piece of work in 8 days which B can destroy in 3 days. A has worked for 6 days, during the last 2 days of which B has been destroying. How many days must A now work alone to complete the work ?

(a) 7 days (b) $7\frac{1}{3}$ days

(c) $7\frac{2}{3}$ days (d) 8 days

TYPE - B

53. Working efficiencies of P and Q for completing a piece of work are in the ratio 3 : 4. The number of days to be taken by them to complete the work will be in the ratio

(a) 3 : 2 (b) 2 : 3

(c) 3 : 4 (d) 4 : 3

54. If 6 men and 8 boys can do a piece of work in 10 days and 26 men and 48 boys can do the same in 2 days, then the time taken by 15 men and 20 boys to do the same type of work will be:

(a) 5 days (b) 4 days

(c) 6 days (d) 7 days

55. 5 men can do a piece of work in 6 days while 10 women can do it in 5 days. In how many days can 5 women and 3 men do it?

(a) 4 days (b) 5 days

(c) 6 days (d) 8 days

56. If 10 men or 20 boys can make 260 mats in 20 days, then how many mats will be made by 8 men and 4 boys in 20 days?

(a) 260 (b) 240

(c) 280 (d) 520

57. If 3 men or 6 women can do a piece of work in 16 days, in how many days can 12 men and 8 women do the same piece of work ?

(a) 4 days (b) 5 days

(c) 3 days (d) 2 days

58. If 16 men or 20 women can do a piece of work in 25 days. In what time will 28 men and 15 women do it?

(a) $14\frac{2}{7}$ days (b) $33\frac{1}{3}$ days

(c) $18\frac{3}{4}$ days (d) 10 days

59. If 3 men or 4 women can plough a field in 43 days, how long will 7 men and 5 women take to plough it?

(a) 10 days (b) 11 days

(c) 9 days (d) 12 days

60. A wall of 100 metres can be built by 7 men or 10 women in 10 days. How many days will 14 men and 20 women take to build a wall of 600 metres

(a) 15 (b) 20

(c) 25 (d) 30

61. 2 men and 1 woman together can complete a piece of work in 14 days, while 4 women and 2 men together can do it in 8 days. If a man gets ₹ 600 per day. how much should a woman get per day?

(a) ₹ 400 (b) ₹ 450

(c) ₹ 480 (d) ₹ 360

62. Jyoti can do $\frac{3}{4}$ of a job in 12 days. Mala is twice as efficient as Jyoti. In how many days will mala finish the job?

(a) 6 days (b) 8 days

(c) 12 days (d) 16 days

63. A is twice as good a workman as B and B is twice as good a workman as C. If A and B can together finish a piece of work in 4 days. then C can do it by himself in

(a) 6 days (b) 8 days

(c) 24 days (d) 12 days

64. If 1 man or 2 women or 3 boys can complete a piece of work in 88 days, then 1 man, 1 woman and 1 boy together will complete it in

(a) 36 days (b) 42 days

(c) 48 days (d) 54 days

65. Tapas works twice as fast as Mihir. If both of them together complete a work in 12 days, Tapas alone can complete it in

(a) 15 days (b) 18 days

(c) 20 days (d) 24 days

66. 2 men and 3 women together or 4 men can complete a piece of work in 20 days. 3 men and 3 women will complete the same work in:

(a) 12 days (b) 16 days

(c) 18 days (d) 19 days

67. 20 men or 24 women can complete a piece of work in 20 days. If 30 men and 12 women under take to complete the work, the work will be completed in

(a) 10 days

(b) 12 days

(c) 15 days

(d) 16 days

68. Twenty women together can complete a piece of work in 16 days, 16 men together can complete the same work in 15 days. The ratio of the working capacity of a man to that of a woman is:

(a) 3 : 4 (b) 4 : 3

(c) 5 : 3 (d) 4 : 5

69. 2 men and 3 women can do a piece of work in 10 days while 3 men and 2 women can do the same work in 8 days. Then, 2 men and 1women can do the same work in

(a) 12 days (b) $12\frac{1}{2}$ days

(c) 13 days (d) $13\frac{1}{2}$ days

70. 5 men and 2 women working together can do four times as much work per hour as a man and a woman together. The work done by a man and a woman should be in the ratio:

(a) 1 : 2 (b) 2 : 1

(c) 1 : 3 (d) 4 : 1

71. Either 8 men or 17 women can paint a house in 33 days. The number of days required to paint three such houses by 12 men and 24 women working at the same rate is:

(a) 44 days (b) 43 days

(c) 34 days (d) 66 days

72. 3 men and 4 boys can complete a piece of work in 12 days. 4 men and 3 boys can do the same work in 10 days. Then 2 men and 3 boys can finish the work in?

(a) $17\frac{1}{2}$ days (b) $5\frac{5}{11}$ days

(c) 8 days (d) 22 days

73. If 8 men or 12 boys can do a piece of work in 16 days, the number of days required to complete the work by 20 men and 6 boys is

(a) $5\frac{1}{3}$ days (b) $6\frac{1}{3}$ days

(c) $8\frac{1}{3}$ days (d) $7\frac{1}{3}$ days

74. If 10 men or 20 women or 40 children can do a piece of work in 7 months, then 5 men, 5 women and 5 children together can do the work in

(a) 6 months (b) 4 months

(c) 5 months (d) 8 months

75. 2 men and 3 boys can do a piece of work in 10 days while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy do the work?

(a) 8 days (b) 7 days

(c) $12\frac{1}{2}$ days (d) 2 days

76. A man a woman and a boy together can finish a piece of work in 6 days. If a man and a woman can do the work in 10 and 24 days respectively. The days taken by a boy to finish the work is

(a) 30 days (b) 35 days

(c) 40 days (d) 45 days

77. If 40 men or 60 women or 80 children can do a piece of work in 6 months, then 10 men, 10 women and 10 children together do the work in

(a) $5\frac{6}{13}$ months

(b) 6 months

(c) $5\frac{7}{13}$ months

(d) $11\frac{1}{13}$ months

78. Two workers A and B working together completed a job in 5 days. If A had worked twice as efficiently as he actually did, the work would have been completed in 3 days. To complete the job alone, A would require

(a) $5\frac{1}{5}$ days (b) $6\frac{1}{4}$ days

(c) $7\frac{1}{2}$ days (d) $8\frac{3}{4}$ days

79. One man, 3 women and 4 boys can do a piece of work in 96 hours, 2 men and 8 boys can do it in 80 hours, 2 men and 3 women can do it in 120 hours, then 5 men and 12 boys can do it in

(a) $39\frac{1}{11}$ hours

(b) $42\frac{7}{11}$ hours

(c) $43\frac{7}{11}$ hours

(d) 44 hours

80. 3 men and 7 women can do a job in 5 days, while 4 men and 6 women can do it in 4 days. The number of days required for a group of 10 women working together, at the same rate as before, to finish the same job in :

(a) 30 days (b) 36 days

(c) 40 days (d) 20 days

81. One man or two women or three boys can do a piece of work in 88 days. one man, one woman and one boy will do it in

(a) 44 days (b) 24 days

(c) 48 days (d) 20 days

82. 4 men and 6 women complete a work in 8 days, 2 men and 9 women also complete in 8 days. The number of days in which 18 women complete the work is:

(a) $5\frac{1}{3}$ days (b) $5\frac{2}{3}$ days

(c) $4\frac{1}{3}$ days (d) $4\frac{2}{3}$ days

(SSC CGL 16-08-2015, Morning)

83. 15 men can finish a piece of work in 20 days, however it takes 24 women to finish it in 20 days. If 10 men and 8 women undertake to complete the work, then they will take

(a) 20 days (b) 30 days

(c) 10 days (d) 15 days

(SSC LDC 1-11-2015, Morning)

84. 3 men or 5 women can do a work in 12 days. How long will 6 men and 5 women take to finish the work?

(a) 20 days (b) 10 days

(c) 4 days (d) 15 days

TYPE - C

85. A particular job can be completed by a team of 10 men in 12 days, The same job can be completed by a team of 10 women in 6 days. How many days are needed to complete the job if the two teams work together?

(a) 4 days (b) 6 days

(c) 9 days (d) 18 days

86. A certain number of men can complete a job in 30 days. If there were 5 men more, it could be completed in 10 days less. How many men were in the beginning ?

(a) 10 (b) 15

(c) 20 (d) 25

87. A contractor undertakes to make a road in 40 days and employes 25 men. After 24 days, he finds that only one-third of the road is made. How many extra men should he employ so that he is able to complete the work 4 days earlier ?

(a) 100 (b) 60

(c) 75 (d) None of these

88. A does half as much work as B in one sixth of the time. If together they take 10 days to complete a work, how much time shall B take to do it alone?

(a) 70 days (b) 30 days

(c) 40 days (d) 50 days

89. Kamal can do a piece of work in 15 days. Bimal is 50 per cent more efficient than Kamal in doing the work . In how many days will Bimal do that work ?

(a) 14 days (b) 12 days

(c) 10 days (d) $10\frac{1}{2}$ days

90. 8 men can do a work in 12 days. After 6 days of work, 4 more men were engaged to finish the work. In how many days would the remaining work be completed?

(a) 2 days (b) 3 days

(c) 4 days (d) 5 days

91. A certain number of persons can complete a piece of work in 55 days. If there were 6 persons more, the work could be finished in 11 days less. How many persons were originally there?

(a) 17 (b) 24

(c) 30 (d) 22

92. 8 men working for 9 hours a day complete a piece of work in 20 days. In how many days can 7 men working for 10 hours a day complete the same piece of work?

(a) $20\frac{4}{7}$ days (b) $20\frac{3}{7}$ days

(c) $21\frac{3}{7}$ days (d) $22\frac{3}{7}$ days

93. 639 persons can repair a road in 12 days working 5 hours a day. In how many days will 30 persons working 6 hours a day complete the work?

(a) 210 days (b) 213 days

(c) 214 days (d) 215 days

94. If 72 men can build a wall of 280 m length in 21 days, how many men could take 18 days to build a similar type of wall of length 100 m?

(a) 30 (b) 10

(c) 18 (d) 28

95. If 6 persons working 8 hours a day earn ₹ 8400 per week, then 9 persons working 6 hours a day will earn per week

(a) ₹ 8400 (b) ₹ 16800

(c) ₹ 9450 (d) 16200

96. 5 persons can prepare an admission list in 8 days working 7 hours a day. If 2 persons join them so as to complete the work in 4 days, how many hours they need to work:

(a) 10 hours (b) 9 hours

(c) 12 hours (d) 8 hours

97. 4 mat-weavers can weave 4 mats in 4 days. At the same rate how many mats would be woven by 8 mat-weavers in 8 days?

(a) 4 (b) 8

(c) 12 (d) 16

98. 10 men working 6 hours a day can complete a work in 18 days. How many hours a day must 15 men work to complete the same work in 12 days?

(a) 6 hrs/day (b) 10 hrs/day

(c) 12 hrs/day (d) 15 hrs/day

99. A certain number of men can do a work in 60 days. If there were eight more men, it could be completed in 10 days less. How many men were there in the beginning ?

(a) 70 (b) 55

(c) 45 (d) 40

100. 12 persons can do a piece of work in 4 days. How many persons are required to complete 8 times the work in half the time ?

(a) 192 (b) 190

(c) 180 (d) 144

101. A work could be completed in 100 days by some workers. However, due to the absence of 10 workers, it was completed in 110 days. The original number of workers was:

(a) 100 (b) 110

(c) 55 (d) 50

102. A job can be completed by 12 men in 12 days. How many extra days will be needed to complete the job if 6 men leave after working for 6 days?

(a) 3 days (b) 6 days

(c) 12 days (d) 24 days

103. A contractor undertook to complete a project in 90 days and employed 60 men on it. After 60 days, he found that $\frac{3}{4}$ of the work has already been completed. How many men can he discharge so that the project may be completed exactly on time?

(a) 40 (b) 20

(c) 30 (d) 15

104. 60 men could complete a piece of work in 250 days. They worked together for 200 days. After that the work had to be stopped for 10 days due to bad weather. How many more men should be engaged to complete the work in time?

(a) 10 (b) 15

(c) 18 (d) 20

105. If 28 men complete $\frac{7}{8}$ of a piece of work in a week, then the number of men, who must be engaged to get the remaining work completed in another week, is

(a) 5 (b) 6

(c) 4 (d) 3

106. A 10 hectare field is reaped by 2 men, 3 women and 4 children together in 10 days. If working capabilities of a man , a woman and a child are in the ratio 5 : 4 : 2, then a 16 hectare field will be reaped by 6 men, 4 women and 7 children in

(a) 5 days (b) 6 days

(c) 7 days (d) 8 days

107. If p men working p hours per day for p days produce p units of work, then the units of work produced by n men working n hours a day for n days is

(a) $\frac{p^2}{n^2}$ (b) $\frac{p^3}{n^2}$

(c) $\frac{n^2}{p^2}$ (d) $\frac{n^3}{p^2}$

108. If two persons, with equal abilities, can do two jobs in two days then 100 persons with equal abilities can do 100 similar jobs in

(a) 100 days (b) 10 days

(c) 5 days (d) 2 days

109. A road of 5 km length will be constructed in 100 days. So 280 workers were employed. But after 80 days it was found that only $3\frac{1}{2}$ km road was completed. Now how many more people were need to finish the work in the specified time?

(a) 480 (b) 80

(c) 200 (d) 100

110. 7 men can complete a piece of work in 12 days. How many additional men will be required to complete double the work in 8 days?

(a) 28 (b) 21

(c) 14 (d) 7

111. A does half as much work as B in three-fourth of the time taken by B. If together they take 18 days to complete the work, how much time shall B take to do it alone?

(a) 30 days (b) 35 days

(c) 40 days (d) 45 days

112. A does half as much work as B in one-third of the time taken by B. If together they take 10 days to complete a work, then the time taken by B alone to do it would have been

(a) 30 days (b) 25 days

(c) 6 days (d) 12 days

113. A can do a piece of work in 9 days. If B is 50% more efficient than A, then in how many days can B do the same work?
(a) 13.5 days (b) 4.5 days
(c) 6 days (d) 3 days

114. A is 30% more efficient than B and can alone do a piece of work in 23 days. In how many days A and B working together, can finish the job is
(a) 11 days (b) 13 days
(c) 20 days (d) 21 days

115. 'x' number of men can finish a piece of work in 30 days. If there were 6 men more, the work could be finished in 10 days less. The original number of men is
(a) 6 (b) 10
(c) 12 (d) 15

116. Working 8 hours a day, Anu can copy a book in 18 days. How many hours a day should she work so as to finish the work in 12 days?
(a) 12 hours (b) 10 hours
(c) 11 hours (d) 13 hours

117. If the work done by $(x - 1)$ men in $(x + 1)$ days and the work done by $(x + 2)$ men in $(x - 1)$ days are in the ratio 9 : 10, then the value of x is equal to:
(a) 5 (b) 6
(c) 7 (d) 8

118. A can do a piece of work in 70 days and B is 40% more efficient than A. Then the number of days taken by B to do the same work is
(a) 40 days (b) 60 days
(c) 50 days (d) 45 days

119. A can do a certain work in 12 days. B is 60% more efficient than A, How many days will B and A together take to do the same job?
(a) $\frac{80}{13}$ days (b) $\frac{70}{13}$ days
(c) $\frac{75}{13}$ days (d) $\frac{60}{13}$ days

120. Some carpenters promised to do a job in 9 days but 5 of them were absent and remaining men did the job in 12 days. The original number of carpenters was
(a) 24 (b) 20
(c) 16 (d) 18

121. Some persons can do a piece of work in 12 days. Two times the number of such persons will do half of the work in
(a) 9 days (b) 6 days
(c) 5 days (d) 3 days

122. If 80 persons can finish a work in 16 days by working 6 hours a day, the number of hours a day should 64 persons work to finish that same job in 15 days is:
(a) 5 hrs (b) 7 hrs
(c) 8 hrs (d) 6 hrs

123. Three men can complete a piece of work in 6 days. Two days after they started the work, 3 more men joined them. How many days will they take to complete the remaining work?
(a) 1 days (b) 2 days
(c) 3 days (d) 4 days

124. If 4 men or 6 women can do a piece of work in 12 days working 7 hours a day; how many days will it take to complete a work twice as large with 10 men and 3 women working together 8 hours a day?
(a) 6 days (b) 7 days
(c) 8 days (d) 10 days

125. If x men can do a piece of work in x days then the number of days in which y men can do the same work is
(a) xy days (b) $\frac{y^2}{x}$ days
(c) $\frac{x^2}{y}$ days (d) x^2y days

126. A contractor undertook to finish a work in 92 days and employed 110 men. After 48 days, he found that he had already done $\frac{3}{5}$ part of the work, the number of men he can withdraw so that his work may still be finished in time is :
(a) 45 (b) 40
(c) 35 (d) 30

127. A man undertakes to do a certain work in 150 days. He employs 200 men. He finds that only a quarter of the work is done in 50 days. The number of additional men that should be appointed so that the whole work will be finished in time is:
(a) 75 (b) 100
(c) 125 (d) 50

128. A contractor undertook to finish a certain work in 124 days and employed 120 men. After 64 days, he found that he had already done $\frac{2}{3}$ of the work. How many men can be discharged now so that the work may finish in time?
(a) 48 (b) 56
(c) 40 (d) 50

129. Two men can do a piece of work in x days. But y women can do that in 3 days. Then the ratio of the work done by 1 man and 1 woman is
(a) $3y : 2x$ (b) $2x : 3y$
(c) $x : y$ (d) $2y : 3x$

130. A farmer can plough a field working 6 hours per day in 18 days. The farmer has to work how many hours per day to finish the same work in 12 days?
(a) 7 hrs (b) 9 hrs
(c) 11 hrs (d) 13 hrs

131. 15 men take 20 days to complete a job working 8 hours a day. The number of hours a day should 20 men take to complete the job in 12 days:
(a) 5 hours (b) 10 hours
(c) 15 hours (d) 18 hours

132. How many men need to be employed to complete the whole job in 5 days, if 15 men can complete $\frac{1}{3}$ of the job in 7 days?
(a) 20 (b) 21
(c) 45 (d) 63

133. If 12 carpenters working 6 hours a day can make 460 chairs in 240 days, then number of chairs made by 18 carpenters in 360 days each working 8 hours a day
(a) 1320 (b) 1380
(c) 1260 (d) 920
(CPO 21-06-2015, Evening)

134. If 90 men can do a certain job in 16 days, working 12 hours/day, then the part of that work which can be completed by 70 men in 24 days, working 8 hours/day is
(a) $\frac{5}{8}$ (b) $\frac{2}{3}$
(c) $\frac{1}{3}$ (d) $\frac{7}{9}$
(SSC CGL Mains 25-10-2015)

135. A company employed 200 workers to complete a certain work in 150 days. If only $\frac{1}{4}^{th}$ of the work had been done in 50 days, then in order to complete the whole work in time, the number of additional workers to be employed were:

(a) 100 (b) 600

(c) 300 (d) 200

(SSC CGL Mains 12-4-15)

136. If 20 women can lay a road of length 100m in 10 days. 10 women can lay the same road of length 50m in:

(a) 5 days (b) 15 days

(c) 10 days (d) 20 days

(SSC LDC 06-12-2015, Evening)

137. A contractor was engaged to construct a road in 16 days. After working for 12 days with 20 labours it was found that only $\frac{5}{8}^{th}$ of the road had been constructed. To complete the work in stipulated time the number of extra labours required are:

(a) 16 (b) 12

(c) 10 (d) 18

(SSC LDC 06-12-2015, Evening)

TYPE - D

138. A and B can do a piece of work in 18 and 24 days respectively. They worked together for 8 days and then A left. The remaining work was finished by B in:

(a) 5 days (b) $5\frac{1}{3}$ days

(c) 8 days (d) 10 days

139. A can do a piece of work in 12 days and B can do it in 18 days. They work together for 2 days and then A leaves. How long will B take to finish the remaining work?

(a) 6 days (b) 8 days

(c) 10 days (d) 13 days

140. A, B and C can complete a piece of work in 10,12 and 15 days respectively, They started the work together. But A left the work before 5 days of its completion. B also left the work 2 days after A left. In how many days was the work completed?

(a) 4 days (b) 5 days

(c) 7 days (d) 8 days

141. A can complete a piece of work in 10 days, B in 15 days and C in 20 days, A and C worked together for two days and then A was replaced by B. In how many days, altogether, work was completed ?

(a) 12 days (b) 10 days

(c) 6 days (d) 8 days

142. A and B can do a job in 6 and 12 days respectively. They began the work together but A leaves after 3 days. Then the total number of days need for the completion of the work is:

(a) 4 days (b) 5 days

(c) 6 days (d) 9 days

143. A and B can together finish a work in 30 days. They worked together for 20 days and then B left. and A finished the remaining work in 20 days so, A can finish whole work in.

(a) 50 days (b) 60 days

(c) 48 days (d) 54 days

144. A can finish a piece of work in 24 days, B in 9 days and C in 12 days B and C start the work but are forced to leave after 3 days. The remaining work was done by A in:

(a) 5 days (b) 6 days

(c) 10 days (d) $10\frac{1}{2}$ days

145. A and B can do a piece of work in 28 and 35 days respectively. They began to work together but A leaves after sometime and B completed remaining work in 17 days. After how many days did A leave?

(a) $14\frac{2}{5}$ days (b) 9 days

(c) 8 days (d) $7\frac{5}{9}$ days

146. A and B can complete a piece of work in 15 days and 10 days respectively. They started doing the work together but after 2 days, B had to leave and A alone completed the remaining work. The whole work was completed in:

(a) 10 days (b) 8 days

(c) 12 days (d) 15 days

147. A and B can do a piece of work in 45 days and 40 days respectively. They began the work together but A left after some days and B completed the remaining work in 23 days. After how many days of work did A leave?

(a) 10 days (b) 9 days

(c) 8 days (d) 5 days

148. A man and a boy can complete a piece of work together in 24 days. If for the last six days boy alone does the work then it is completed in 28 days. How long the man will take to complete the work alone ?

(a) 72 days (b) 20 days

(c) 24 days (d) 36 days

149. A can do a piece of work in 18 days and B in 12 days. They began the work together, but B left the work 3 days before its completion. In how many days, all work was completed?

(a) 12 days (b) 10 days

(c) 9.6 days (d) 9 days

150. A and B can separately complete a piece of work in 20 days and 30 days respectively. They worked together for some time, then B left the work. If A completed the rest of the work in 10 days, then B worked for:

(a) 6 days (b) 8 days

(c) 12 days (d) 16 days

151. A and B alone can complete a piece of work in 9 days and 18 days respectively. They worked together, however, 3 days before the completion of the work A left. In how many days was the work completed?

(a) 13 days (b) 8 days

(c) 6 days (d) 5 days

152. A and B can do a piece of work in 12 days and 15 days respectively. They began to work together but A left after 4 days. In how many more days would B alone complete the remaining work?

(a) $\frac{20}{3}$ days (b) $\frac{25}{3}$ days

(c) 6 days (d) 5 days

153. A can complete a piece of work in 18 days, B completes in 20 days and C in 30 days, B and C together started the work and forced to leave after 2 days. The time taken by A alone to complete the remaining work is

(a) 10 days (b) 12 days

(c) 15 days (d) 16 days

154. A alone can complete a piece of work in 18 days and B alone in 15 days, B alone worked at it for 10 days and then left the work, In how many more days, will A alone complete the remaining work?

(a) 5 days (b) $5\frac{1}{2}$ days

(c) 6 days (d) 8 days

155. A can do a piece of work in 12 days. When he had worked for 3 days. B joined him. If they complete the work in 3 more days, in how many days can B alone finish the work?

(a) 6 days (b) 12 days

(c) 4 days (d) 8 days

156. 45 men can complete a piece of work in 16 days. Four days after they started working, 36 more men joined them. How many days will they take to complete the remaining work?

(a) 6 days (b) 8 days

(c) $6\frac{2}{3}$ days (d) $7\frac{3}{4}$ days

157. A can finish a piece of work in 18 days and B can do the same work in 15 days, B worked for 10 days and left the job. In how many days, A alone can finish the remaining work?

(a) 6 days (b) $5\frac{1}{2}$ days

(c) 5 days (d) 8 days

158. A and B together can complete a piece of work in 3 days. They start together. But, after 2 days, B left the work, If the work is completed after 2 next days. B alone could do the work in

(a) 10 days (b) 4 days

(c) 6 days (d) 8 days

159. A can do a piece of work in 20 days and B in 30 days. They work together for 7 days and then both leave the work. Then C alone finishes the remaining work in 10 days. In how many days will C finish the full work?

(a) 25 days (b) 30 days

(c) 24 days (d) 20 days

160. A and B together can complete a job in 8 days. Both B and C, working alone can finish the same job in 12 days, A and B commence work on the job, and work for 4 days, where upon A leaves, B continues for 2 more days, and then he leaves too, C now starts working, and finishes the job. How many days will C require to finish the remaining work?

(a) 5 days (b) 8 days

(c) 3 days (d) 4 days

161. A and B can together finish a piece of work in 30 days . They worked on it for 20 days and then B left. The remaining work was done by A alone in 20 days. A alone can finish the work in

(a) 60 days (b) 54 days

(c) 48 days (d) 50 days

162. A, B and C can do a job in 6 days, 12 days and 15 days respectively. After $\frac{1}{8}$ of the work is completed, C leaves the job. Rest of the work is done by A and B together, Time taken to finish the remaining work is

(a) $5\frac{5}{6}$ days (b) $5\frac{1}{4}$ days

(c) $3\frac{1}{2}$ days (d) $3\frac{3}{4}$ days

163. 16 women take 12 days to complete a work which can be completed by 12 men in 8 days. 16 men started working and after 3 days 10 men left and 4 women joined them. How many days will they take to complete the remaining work?

(a) 4 days (b) 6 days

(c) 8 days (d) 10 days

164. 40 men can complete a piece of work in 18 days. Eight days after they started working together, 10 more men joined them. How many days will they now take to complete the remaining work?

(a) 6 days (b) 8 days

(c) 10 days (d) 12 days

165. 20 men can do a piece of work in 18 days. They worked together for 3 days, then 5 men joined. In how many days is the remaining work completed?

(a) 12 days (b) 14 days

(c) 13 days (d) 15 days

(CPO 21-06-2015, Morning)

166. A, B and C can complete a piece of work in 10, 12 and 15 days respectively. A left the work 5 days before the work was completed and B left 2days after A had left. Number of days required to complete the whole work was:

(a) $8\frac{2}{3}$ days (b) 6 days

(c) $6\frac{2}{3}$ days (d) 7 days

(SSC LDC 15-11-2015, Morning)

167. X alone can complete a piece of work in 40 days. He worked for 8 days and left. Y alone completed the remaining work in 16 days. How long would X and Y together take to complete the work?

(a) $13\frac{1}{3}$ days (b) 14 days

(c) 15 days (d) $16\frac{2}{3}$ days

168. A and B together can do a piece of work in 12 days which B and C together do in 16 days.If A works for 5 days, B works for 7 days than C completes the remaining work in 13 days. In how much time B alone does the whole work.

(a) 48 days (b) 24 days

(c) 16 days (d) 12 days

169. A and B together can do a piece of work in 30 days, B and C together can do it in 20 days, A starts the work and works on it for 5 days, then B takes up and work for 15 days. Finally C finishes the work in 18 days. The number of days in which C alone can do the work where doing it separately is:
(a) 120 days (b) 40 days
(c) 60 days (d) 24 days

(SSC CGL 16-08-2015, Evening)

170. P and Q together can do a job in 6 days. Q and R can finish the same job in 60/7 days. P started the work and worked for 3 days. Q and R continued for 6 days to finish the work. Then the difference of days in which R and P can complete the job alone is
(a) 10 days (b) 8 days
(c) 12 days (d) 15 days

(SSC CGL Mains 25-10-2015)

171. If the expenditure of gas on burning 6 burners for 6 hours a day for 8 days is ₹ 450, then how many burners can be used for 10 days at 5 hours a day for ₹ 625 ?
(a) 12 (b) 16
(c) 4 (d) 8

172. X can do a piece of work in 24 days. When he had worked for 4 days, Y joined him. If complete work was finished in 16 days, Y can alone finish that work in:
(a) 27 days (b) 36 days
(c) 42 days (d) 18 days

(SSC LDC 15-11-2015, Morning)

TYPE - E

173. Working efficiencies of P and Q for completing a piece of work are in the ratio 3 : 4. The number of days to be taken by them to complete the work will be in the ratio
(a) 3 : 2 (b) 2 : 3
(c) 3 : 4 (d) 4 : 3

174. A is thrice as good a workman as B, therefore he able to finish a piece of work in 60 days less than B. The time (in days) in which they can do it together is:
(a) 22 days (b) $22\frac{1}{2}$ days
(c) 23 days (d) $23\frac{1}{4}$ days

175. To complete a piece of work, A takes 50% more time than B. If together they take 18 days to complete the work, how much time will B take to do it?
(a) 30 days (b) 35 days
(c) 40 days (d) 45 days

176. A, B and C completed a work costing ₹ 1,800. A worked for 6 days, B for 4 days and C for 9 days. If their daily wages are in the ratio of 5 : 6 : 4, how much amount will be received by A?
(a) ₹ 800 (b) ₹ 600
(c) ₹ 900 (d) ₹ 750

177. A takes twice as much time as B and thrice as much as C to complete a piece of work. They together complete the work in 1 day. in what time, will A alone complete the work.
(a) 9 days (b) 5 days
(c) 6 days (d) 4 days

178. A and B together can complete a piece of work in 15 days . A is 150% more efficient worker than B. How long will A take to complete the work alone?
(a) 20 days (b) 21 days
(c) 21.4 days (d) 22.5 days

179. A is thrice as good a workman as B and therefore is able to finish a job in 40 days less than B. Working together, they can do it in
(a) 14 days (b) 13 days
(c) 20 days (d) 15 days

180. A and B can do a job together in 12 days. A is 2 times as efficient as B. In how many days can B alone complete the work?
(a) 18 days (b) 9 days
(c) 36 days (d) 12 days

181. P is thrice as good a workman as Q and therefore able to finish a job in 48 days less than Q. working together, they can do it in:
(a) 18 days (b) 24 days
(c) 30 days (d) 12 days

182. To do a certain work, B would take time thrice as long as A and C together and C twice as long as A and B together. The three men together complete the work in 10 days. The time taken by A to complete the work separately is
(a) 22 days (b) 24 days
(c) 30 days (d) 20 days

183. A does 20% less work than B. If A can complete a piece of work in $7\frac{1}{2}$ hours, then B can do it in
(a) $6\frac{1}{2}$ hours (b) 6 hours
(c) $5\frac{1}{2}$ hours (d) 5 hours

184. A can do a piece of work in 6 days. B is 25% more efficient than A. How long would B alone take to finish this work?
(a) $4\frac{4}{5}$ days (b) $3\frac{1}{3}$ days
(c) $5\frac{1}{4}$ days (d) $2\frac{2}{3}$ days

185. Sunil completes a piece of work in 4 days, whereas Dinesh completes the work in 6 days. Ramesh does the work $1\frac{1}{2}$ times as fast as Sunil does. The three together can complete the work in
(a) $1\frac{5}{12}$ days (b) $1\frac{5}{7}$ days
(c) $1\frac{3}{8}$ days (d) $1\frac{5}{19}$ days

186. A takes three times as long as B and C together to do a job. B takes four times as long as A and C together to do the work. If all the three, working together can complete the job in 24 days, then the number of days, A alone will take to finish the job is
(a) 100 (b) 96
(c) 95 (d) 90

187. A man is twice as fast as a woman and a woman is twice as fast as a boy in doing a work. If all of them, a man, a woman and a boy can finish the work in 7 days, A boy will do it alone?
(a) 49 (b) 7
(c) 6 (d) 42

188. A's 2 days work is equal to B's 3 days work. If A can complete the work in 8 days, then to complete the work B will take:
(a) 15 days (b) 12 days
(c) 16 days (d) 14 days

(SSC CGL 16-08-2015, Morning)

189. If A, B and C can complete a piece of work in 6 days. If A can work twice faster than B and thrice faster than C, than the number of days C alone can complete the work is :
(a) 44 (b) 33
(c) 22 (d) 11

(SSC CGL 16-08-2015, Evening)

190. If a man earns ₹ 2000 for his first 50 hours of work in a week and is then paid one and one half times his regular hourly rate for additional hours, then the additional hours must he work to make ₹ 2300 in a week is
(a) 6 hours (b) 7 hours
(c) 4 hours (d) 5 hours

(SSC CGL Mains 12-4-15)

191. A can do half of a piece of work in 1 day, whereas B can do full. B can do half the work as C in 1 day. The ratio of their efficiencies of work is
(a) 1 : 2 : 4 (b) 2 : 1 : 4
(c) 4 : 2 : 1 (d) 2 : 4 : 1

(SSC LDC 1-11-2015, Morning)

192. A can do three times the work done by B in one day. They together finish $\frac{2}{5}$ of the work in 9 days. The number of days by which B can do the work alone are:
(a) 120 days (b) 100 days
(c) 30 days (d) 90 days

(SSC LDC 15-11-2015, Evening)

TYPE - F

193. The average wages of 500 workers were found to be ₹ 200. Later on , it was discovered that the wages of two workers were misread as 180 and 20 instead of 80 and 220. The correct average wages are:
(a) ₹ 200.10 (b) ₹ 200.20
(c) ₹ 200.50 (d) ₹ 201.00

194. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do the work in
(a) 15 days (b) 20 days
(c) 25 days (d) 30 days

195. A can write 75 pages in 25hrs. A and B together can write 135 pages in 27 hrs. In what time can B write 42 pages ?
(a) 17 hrs (b) 19hrs
(c) 21 hrs (d) 23hrs

196. A and B can complete a piece of work in 12 and 18 days respectively. A begins to do the work and they work alternatively one at a time for one day each.The whole work will be completed in
(a) $14\frac{1}{3}$ days (b) $15\frac{1}{3}$ days
(c) $16\frac{1}{3}$ days (d) $18\frac{2}{3}$ days

197. A labourer was appointed by a contractor on the condition he would be paid ₹ 75 for each day of his work but would be, fined at the rate of ₹ 15 per day for his absent. After 20 days, the contractor paid the labourer ₹ 1140. The number of days the labourer absented from work was
(a) 3 days (b) 5 days
(c) 4 days (d) 2 days

198. 40 men can complete a piece of work in 40 days. They started the work together. But at the end of each 10th day, 5 men left the job. The work would have been completed in
(a) $56\frac{2}{3}$ days (b) $53\frac{1}{3}$ days
(c) 52 days (d) 50 days

199. A, B and C can do a piece of work in 20,30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?
(a) 10 days (b) 12 days
(c) 15 days (d) 20 days

200. A and B working separately can do a piece of work in 9 and 12 days respectively. If they work for a day alternately with A beginning, the work would be completed in
(a) $10\frac{2}{3}$ days (b) $10\frac{1}{2}$ days
(c) $10\frac{1}{4}$ days (d) $10\frac{1}{3}$ days

201. A can do a piece of work in 5 days less than the time taken by B to do it. If both of them together take $11\frac{1}{9}$ days, then the time taken by 'B' alone to do the same work (in days) is
(a) 15 days (b) 20 days
(c) 25 days (d) 30 days

202. A takes 10 days less than the time taken by B to finish a piece of work. If both A and B can do it in 12 days, then the time taken by B alone to finish the work is
(a) 30 days (b) 27 days
(c) 20 days (d) 25 days

203. A,B and C can do a piece of work in 30,20 and 10 days respectively. A is assisted by B on one day and by C on the next day, alternatively. How long would the work take to finish?
(a) $9\frac{3}{8}$ days (b) $4\frac{8}{8}$ days
(c) $8\frac{4}{13}$ days (d) $3\frac{9}{13}$ days

204. Dinesh and Rakesh are working on an Assignment, Dinesh takes 6 hours to type 32 pages on a computer, while Rakesh takes 5 hours to type 40 pages. How much time will they take working together on two different computers to type an assignment of 110 page ?
(a) 7 hrs, 30 min.
(b) 8 hrs,
(c) 8 hrs, 15 min
(d) 8 hrs, 25 min.

205. A can do as much work as B and C together can do . A and B can together do a piece of work in 9 hours 36 minutes and C can do it in 48 hours. The time (in hours) that B needs to do the work alone, is:
(a) 18 hrs (b) 24 hrs
(c) 30 hrs (d) 12 hrs

206. Three men A, B and C working together can do a job in 6 hours less time than A alone, in 1 hour less time than B alone and in one half the time needed by C when working alone. Then A and B together can do the job in

(a) $\frac{2}{3}$ hour (b) $\frac{2}{3}$ hour

(c) $\frac{3}{2}$ hour (d) $\frac{4}{3}$ hour

207. A and B working separately can do a piece of work in 9 and 15 days respectively. If they work for a day alternatively, with A beginning, then the work will be completed in

(a) 10 days (b) 11 days

(c) 9 days (d) 12 days

208. 12 monkeys can eat 12 bananas in 12 minutes. In how many minutes can 4 monkeys eat 4 bananas?

(a) 4 minutes (b) 10 minutes

(c) 12 minutes (d) 8 minutes

(CPO 21-06-2015, Morning)

209. Two workers A and B are engaged to do a piece of work. A working alone would take 8 hours more to complete the work that when work together. If B worked alone, would take $4\frac{1}{2}$ hours more than when working together. The time required to finish the work together is

(a) 5 hours (b) 8 hours

(c) 4 hours (d) 6 hours

(SSC CGL Mains 12-4-15)

210. x can copy 80 pages in 20 hours, x and y together can copy 135 pages in 27 hours. Then y can copy 20 pages in

(a) 20 hours (b) 24 hours

(c) 3 hours (d) 12 hours

(SSC CGL Mains 12-4-15)

211. Work done by $(x + 4)$ men in $(x + 5)$ days is equal to the work done by $(x - 5)$ men in $(x + 20)$ days. Then the value of x is

(a) 15 (b) 20

(c) 25 (d) 30

(SSC LDC 20-12-2015, Morning)

212. Ganga and Saraswati, working separately can plough a field in 8 and 12 hours respectively. If they work in stretches of one hour alternately. Ganga begins at 9 a.m., when will the ploughing be completed?

(a) 6 p.m. (b) 6.30 p.m.

(c) 5 p. m. (d) 5.30 p.m.

213. A and B can separately finish a piece of work in 20 days and 15 days respectively. They worked together for 6 days, after which B was replaced by C. If the work was finished in next 4 days, then the number of days in which C alone could do the work is

(a) 60 days (b) 40 days

(c) 50 days (d) 30 days

(SSC CPO 20-03-2016, Morning)

214. If 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days, then 10 women complete it in

(a) 35 days (b) 50 days

(c) 45 days (d) 40 days

(SSC CPO 20-03-2016, Morning)

215. A can do a piece of work in 12 days and B in 24 days. If they work together, in how many days will they finish the work?

(a) 20 days (b) 8 days

(c) 12 days (d) 15 days

(SSC CPO 20-03-2016, Evening)

216. A, B and C working separately can do a piece of work in 11 days, 20 days and 55 days respectively. In how many days the work will be completed if A is assisted by B and C on alternate days?

(a) 8 (b) 4

(c) 6 (d) 2

(SSC CPO 20-03-2016, Evening)

217. Amit, Bhawna and Chandan can do a piece of work, working together in one day only. Amit is 5 times efficient than Bhawna and Chandan takes half of the number of days taken by Bhawna to do the same work. What is the difference between the number of days taken by Amit and Chandan when they work alone?

(a) 4 (b) 5

(c) 3 (d) $2\frac{2}{5}$

(SSC CPO(Re) 05-06-2016, Morning)

218. A, B and C can complete a work in 10 days, 20 days and 30 days respectively. They start work together and work for 4 days. After 4 days, A starts working with double efficiency and C starts working with half of his efficiency. In how many days' work will be completed?

(a) 1 (b) 4

(c) 5 (d) 6

(SSC CPO(Re) 05-06-2016, Evening)

219. 12 men can do a piece of work in 15 days and 20 women can do the same work in 12 days. In how many days can 5 men and 5 women complete the same work?

(a) $20\frac{4}{7}$ days

(b) $2\frac{4}{7}$ days

(c) $20\frac{3}{7}$ days

(d) 18 days

(SSC CPO(Re) 10-06-2016, Morning)

220. A can do a piece of work in 12 days and B in 20 days. If they together work on it for 5 days, and remaining work is completed by C in 3 days, then in how many days can C do the same work alone?

(a) 10 days (b) 9 days

(c) 12 days (d) 15 days

(SSC CPO(Re) 10-06-2016, Morning)

221. A and B work together to complete the rest of a job in 7 days. However, 37/100 of the job was already done. Also the work done by A in 5 days is equal to the work done by B in 4 days. How many days would be required by the fastest worker to complete the entire work?

(a) 20 (b) 25

(c) 30 (d) 10

(SSC CPO(Re) 11-06-2016, Morning)

222. 'A' can do a work in 10 days. The efficiency of 'A' is 20% less than 'B'. How many days 'B' need to finish the same work?

(a) 8.5 days (b) 12.3 days

(c) 8 days (d) 7.5 days

(SSC CPO(Re) 11-06-2016, Evening)

223. 12 men can complete a work in 90 days. 30 days after they started work, 2 men left and 8 men joined. How many days will it take to complete the remaining work?

(a) 90 days (b) 60 days

(c) 40 days (d) 50 days

(SSC CPO(Re) 11-06-2016, Morning)

224. A group of workers can complete a piece of work in 50 days, when they are working individually. On the first day one person works, on the second day another person joins him, on the third day one more person joins them and this process continues till the work is completed. How many approximate days are needed to complete the work?

(a) 8 days (b) 9 days

(c) 10 days (d) 11 days

(SSC CPO(Re) 11-06-2016, Evening)

225. A can do a piece of work in 20 days and B in 15 days. With help of C,they finish the work in 5 days. In how many days C alone can do the same work?

(a) 5 days (b) 6 days

(c) 10 days (d) 12 days

(SSC CGL Mains Exam 2016)

226. Shashi can do a piece of work in 20 days. Tanya is 25% more efficient than Sashi. The number of days taken by Tanya to do the same piece of work is:

(a) 15 (b) 25

(c) 18 (d) 16

(SSC CGL Mains Exam 2016)

227. 18 men or 36 boys working 6 hours a day can plough a field in 24 days. In how many days will 24 men and 24 boys working 9 hours a day plough the same field?

(a) 9 (b) 10

(c) 6 (d) 8

(SSC CGL Mains Exam 2016)

228. A can do 1/3rd of a work in 5 days and B can can do 2/5th of this work in 10 days. Both A and B, together can do the work in

(a) $7\frac{3}{8}$ days (b) $8\frac{4}{5}$ days

(c) $9\frac{3}{8}$ days (d) 10 days

(SSC CGL Mains Exam 2016)

229. A and B undertake a piece of work for Rs. 250. A alone can do that work in 5 days and B alone can do that work in 15 days. With the help of C, they finish the work in 3 days. If every one gets paid in proportion to work done by them, the amount C will get is

(a) Rs. 50 (b) Rs. 100

(c) Rs. 150 (d) Rs. 200

(SSC CGL Mains Exam 2016)

230. A is twice as good as B and together they finish a piece of work in 16 days. The number of days taken by A alone to finish the work is

(a) 20 days (b) 21 days

(c) 22 days (d) 24 days

(SSC CGL Mains Exam 2016)

231. The rate of working of A and B are in the ratio of 2 : 3. The number of days taken by them to finish the work is in the ratio:

(a) 2 : 3 (b) 4 : 9

(c) 3 : 2 (d) 9 : 4

(SSC CGL Mains Exam 2016)

232. A, B and C contract a work for ₹ 440. Together A and B do 9/11 of the work. The share of C should be;

(a) 75 (b) 90

(c) 100 (d) 80

(SSC CGL Mains Exam 2016)

233. A and B can together do a piece of work in 6 days and A alone can do it in 9 days. The number of days B will take to do it alone is

(a) 18 days (b) 24 days

(c) 9 days (d) 12 days

(SSC CGL Mains Exam 2016)

234. A can do a piece of work in 18 days. He worked at it for 12 days and B finished the remaining work in 8 days. B alone can do the whole work in

(a) 16 days (b) 24 days

(c) 35 days (d) 28 days

(SSC CGL Mains Exam 2016)

235. A can do a work in 12 days while B can do it in 15 days. They undertake to complete it together for Rs. 450. what will be the share of A in this amount of money?

(a) ₹ 200 (b) ₹ 240

(c) ₹ 250 (d) ₹ 300

(SSC CGL Mains Exam 2016)

236. A and B can do a work in 8 days, B and C can do the same work in 12 days. A, B and C together can finish it in 6 days A and C together will do it in:

(a) 4 days (b) 6 days

(c) 8 days (d) 12 days

(SSC CGL Mains Exam 2016)

237. A can do a certain job in 12 days. B is 60% more efficient than A. Then B can do the same piece of work in

(a) 8 days (b) $7\frac{1}{2}$ days

(c) $6\frac{1}{4}$ days (d) 6 days

(SSC CGL Mains Exam 2016)

238. A man can do a piece of work in 30 hours . If he works with his son then the same piece of work is finished in 20 hours . If the son works alone then he can do the work in:

(a) 60 hours (b) 50 hours

(c) 25 hours (d) 10 hours

(SSC CGL Mains Exam 2016)

239. John does 1/2 piece of work in 3 hours, Joe does 1/4 of the remaining work in 1 hour and George finishes remaining work in 5 hours .How long would it have taken the three working together to do the work?

(a) $2\frac{1}{7}$ hours (b) $3\frac{1}{7}$ hours

(c) $3\frac{8}{11}$ hours (d) $2\frac{8}{11}$ hours

(SSC CGL Mains Exam 2016)

240. A does 2/5 of a work in 9 days . Then B joined him and they together completed the remaining work in 6 days . B alone can finish the whole work in

(a) $\frac{12}{13}$ days (b) $\frac{2}{11}$ days

(c) 10 days (d) 18 days

(SSC CGL Mains Exam 2016)

241. The daily wages of A and B respectively are ₹ 3.50 and ₹ 2.50. When A finishes a certain work, he gets a total wage of ₹ 63. When B does the same work , he gets a total wage ₹ 75. If both of them do it together what is the cost of the work ?

(a) ₹ 67.50 (b) ₹ 27.50

(c) ₹ 60.50 (d) ₹ 70.50

(SSC CGL Mains Exam 2016)

242. A man does double the work done by a boy in the same time. The number of days that 3 men and 4 boys will take to finish a work which can be done by 10 men in 8 days is

(a) 4 (b) $8\frac{3}{5}$

(c) 16 (d) $7\frac{3}{11}$

(SSC CGL Mains Exam 2016)

243. P can do $\left(\frac{1}{4}\right)$th of work in 10 days, Q can do 40% of work in 40 days and R can do $\left(\frac{1}{3}\right)$rd of work in 13 days. Who will complete the work first?

(a) P (b) Q

(c) R (d) Both P and R

(SSC CGL Mains Exam 2016)

244. Working 7 hours in a day, 4 men can do a piece of work in 8 days. Working 8 hours in a day, the required number of men to perform the same work in 4 days will be

(a) 8 (b) 4

(c) 7 (d) 9

(SSC CGL Mains Exam 2016)

245. 35 persons are engaged to complete a work in 60 days. After 32 days it is observed that only $\left(\frac{2}{5}\right)$th part of the work has been done. The number of more persons to be engaged to complete the remaining work in the said period is

(a) 20 (b) 35

(c) 30 (d) 25

(SSC CGL Mains Exam 2016)

246. The time taken by 4 men to complete a job is double the time taken by 5 children to complete the same job. Each man is twice as fast as a woman. How long will 12 men 10 children and 8 women take to complete a job, given that a child would finish the job in 20 days.

(a) 4 Days (b) 2 Days

(c) 1 Days (d) 1 Days

(SSC CGL Mains Exam 2016)

247. The labourers A, B, C were given a contract of ₹ 750 for doing a certain piece of work. All the three together can finish the work in 8 days. A and C together can do it in 12 days, while A and B together can do it in $13\frac{1}{3}$ days. The money will be divided in the ratio

(a) 4 : 5 : 6 (b) 4 : 7 : 5

(c) 5 : 7 : 4 (d) 5 : 6 : 8

(SSC CGL Mains Exam 2016)

248. A and B together can complete a piece of work in 12 days. They worked together for 5 days and then A alone finished the rest work in 14 days. A alone can complete the work in ___.

(a) 24 Days (b) 22 Days

(c) 30 Days (d) 18 Days

(SSC CGL Mains Exam 2016)

249. A canal of a village can be cleaned by 24 villagers in 12 days. The number of days in which 36 villagers can clean the canal is?

(a) 18 (b) 8

(c) 72 (d) 16

(SSC CGL Mains Exam 2016)

250. Ramesh and Rahman can do a work in 20 and 25 days respectively. After doing collectively 10 days of work, they leave the work due to illness and Suresh completes rest of the work in 3 days. How many days Suresh alone can take to complete the whole work?

(a) 32 days (b) 28 days

(c) 29 days (d) 30 day

(SSC CGL Mains Exam 2016)

251. A can do as much work in 4 days as B can do in 5, and B can do as much work in 6 days as C in 7 days. In what time will C do a piece of work which A can do in a week?

(a) $10\frac{5}{24}$ days (b) $4\frac{4}{5}$ day

(c) $6\frac{8}{15}$ days (d) $12\frac{6}{19}$ days

(SSC CGL Mains Exam 2016)

252. A can do a piece of work in 10 days and B can do it in 12 days. They work together for 3 days. Then B leaves and A alone continues. 2 days after that C joins and the work is completed in 2 days. In how many days can C do it, if he works alone?

(a) 30 days (b) 50 days

(c) 40 days (d) 60 days

(SSC CGL Mains Exam 2016)

253. The ratio of the amount of work done by $(x-1)$ labours in $(x+1)$ days and $(x+1)$ labours in $(x+2)$ days is 5 : 6. Then the value of x is

(a) 16 (b) 15

(c) 17 (d) 14

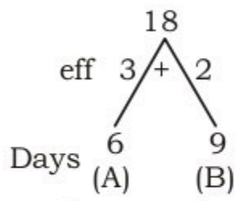
(SSC CGL Mains Exam 2016)

ANSWER KEY

1.	(c)	29.	(a)	57.	(c)	85.	(a)	113.	(c)	141.	(d)	169.	(d)	197.	(c)	225.	(d)
2.	(a)	30.	(d)	58.	(d)	86.	(a)	114.	(b)	142.	(c)	170.	(a)	198.	(a)	226.	(d)
3.	(c)	31.	(b)	59.	(d)	87.	(c)	115.	(c)	143.	(b)	171.	(d)	199.	(c)	227.	(d)
4.	(a)	32.	(c)	60.	(a)	88.	(c)	116.	(a)	144.	(c)	172.	(b)	200.	(c)	228.	(c)
5.	(c)	33.	(b)	61.	(a)	89.	(c)	117.	(d)	145.	(c)	173.	(d)	201.	(c)	229.	(a)
6.	(c)	34.	(a)	62.	(b)	90.	(c)	118.	(c)	146.	(c)	174.	(b)	202.	(a)	230.	(d)
7.	(c)	35.	(c)	63.	(c)	91.	(b)	119.	(d)	147.	(b)	175.	(a)	203.	(a)	231.	(c)
8.	(d)	36.	(d)	64.	(c)	92.	(a)	120.	(b)	148.	(d)	176.	(b)	204.	(c)	232.	(d)
9.	(b)	37.	(d)	65.	(b)	93.	(b)	121.	(d)	149.	(d)	177.	(c)	205.	(b)	233.	(a)
10.	(b)	38.	(b)	66.	(b)	94.	(a)	122.	(c)	150.	(a)	178.	(b)	206.	(d)	234.	(b)
11.	(d)	39.	(d)	67.	(a)	95.	(c)	123.	(b)	151.	(b)	179.	(d)	207.	(b)	235.	(c)
12.	(d)	40.	(a)	68.	(b)	96.	(a)	124.	(b)	152.	(c)	180.	(c)	208.	(c)	236.	(c)
13.	(a)	41.	(c)	69.	(b)	97.	(d)	125.	(c)	153.	(c)	181.	(a)	209.	(d)	237.	(b)
14.	(b)	42.	(a)	70.	(b)	98.	(a)	126.	(d)	154.	(c)	182.	(b)	210.	(a)	238.	(a)
15.	(a)	43.	(d)	71.	(c)	99.	(d)	127.	(b)	155.	(a)	183.	(b)	211.	(b)	239.	(d)
16.	(c)	44.	(c)	72.	(a)	100.	(a)	128.	(b)	156.	(c)	184.	(a)	212.	(b)	240.	(d)
17.	(a)	45.	(c)	73.	(a)	101.	(b)	129.	(a)	157.	(a)	185.	(d)	213.	(b)	241.	(a)
18.	(b)	46.	(d)	74.	(d)	102.	(b)	130.	(b)	158.	(c)	186.	(b)	214.	(d)	242.	(c)
19.	(c)	47.	(d)	75.	(c)	103.	(b)	131.	(b)	159.	(c)	187.	(a)	215.	(b)	243.	(c)
20.	(c)	48.	(c)	76.	(c)	104.	(b)	132.	(d)	160.	(d)	188.	(b)	216.	(a)	244.	(c)
21.	(a)	49.	(a)	77.	(d)	105.	(c)	133.	(b)	161.	(a)	189.	(b)	217.	(d)	245.	(d)
22.	(b)	50.	(b)	78.	(c)	106.	(d)	134.	(d)	162.	(c)	190.	(d)	218.	(c)	246.	(c)
23.	(c)	51.	(b)	79.	(c)	107.	(d)	135.	(a)	163.	(b)	191.	(a)	219.	(a)	247.	(a)
24.	(c)	52.	(b)	80.	(d)	108.	(d)	136.	(c)	164.	(b)	192.	(d)	220.	(b)	248.	(a)
25.	(a)	53.	(d)	81.	(c)	109.	(c)	137.	(a)	165.	(a)	193.	(b)	221.	(a)	249.	(b)
26.	(a)	54.	(b)	82.	(a)	110.	(c)	138.	(b)	166.	(d)	194.	(c)	222.	(c)	250.	(d)
27.	(a)	55.	(b)	83.	(a)	111.	(a)	139.	(d)	167.	(a)	195.	(c)	223.	(c)	251.	(a)
28.	(c)	56.	(a)	84.	(c)	112.	(b)	140.	(c)	168.	(a)	196.	(a)	224.	(c)	252.	(c)
																253.	(a)

EXPLANATION

1. (c)



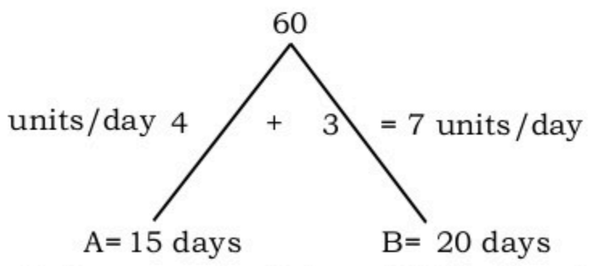
A's one day work = 3 units

B's one day work = 2 units

(A + B) Complete the whole work in:

$$\frac{\text{T.W}}{\text{eff of A+B}} = \frac{18}{(3+2)} = 3.6 \text{ days}$$

2. (a)



4 days work of A and B is 7 × 4 = 28 units

work left 60 – 28 = 32 units

$$\frac{\text{Rest work}}{\text{Total work}} = \frac{32}{60}$$

$$\text{fraction} = \frac{8}{15}$$

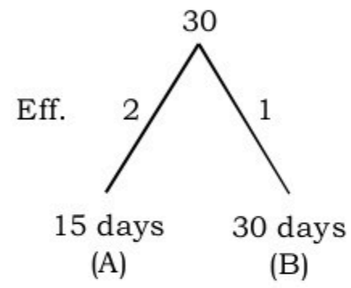
3. (c) Cultivate in 1 day

A can cultivate $\frac{2}{5}$th of land in 6 days

A can cultivate1 part of land in $6\times\frac{5}{2} = 15$ days

B can cultivate $\frac{1}{3}$rd of land in 10 days

B can cultivate 1 part of land in 30 days



T.W = 30 units

$\frac{4}{5}$th of work $= \frac{4}{5}\times 30 = 24$ units

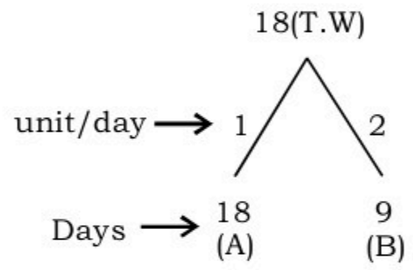
$\therefore$ $\frac{4}{5}$th work done by A + B in

$= \frac{24}{3}$ days = 8 days

4. (a) If A does a work in 18 days.

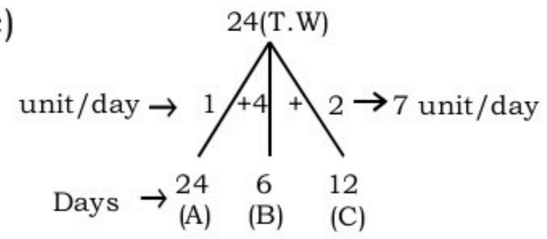
ATQ,

B does same work in 9 days.



$= \frac{3}{18} = \frac{1}{6}$ part

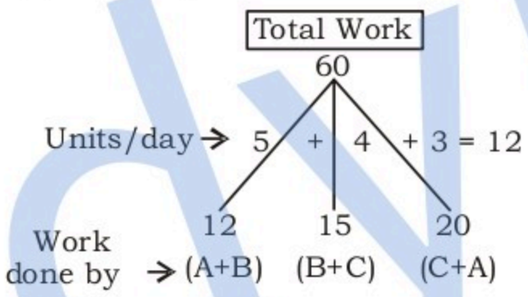
5. (c)



$\therefore$ Total time taken by (A + B + C)

$= \frac{24}{7} = 3\frac{3}{7}$ days

6. (c) Concept



Description:

- In these kind of Questions, always take total work [T.W.] as L.C.M of no of days. Here T.W. is 60.
- If A + B complete the whole work in 12 days, so their one day work will be 5 unit. Similarly we will calculate the one day work for other two pair.

(Here, 12 unit represents twice of the work done by A, B and C. So we will divide it by 2)

work done by (A + B + C)/day ,

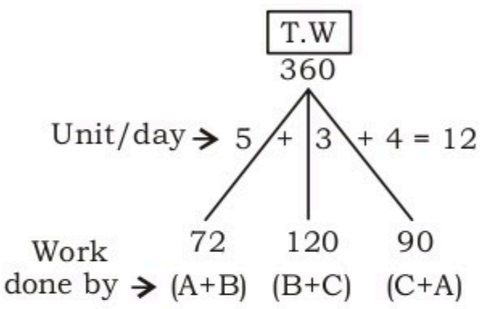
$= \frac{12}{2} = 6$ units/day

$\therefore$ Total time taken by (A + B + C)

$= \frac{\text{Total work}}{\text{T.W done by (A+B+C)/day}}$

$= \frac{60}{6} = 10$ days

7. (c)



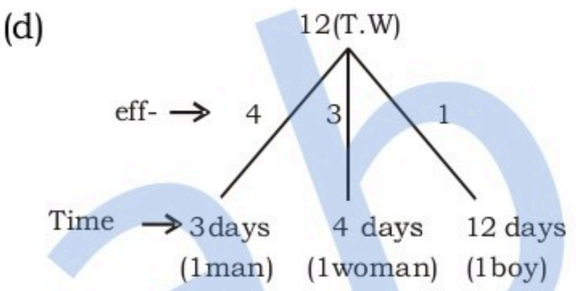
[Like Q : 6)

work done by (A + B + C) per day = 6 units/day

Total time taken by (A + B + C)

$= \frac{360}{6} = 60$ days

8. (d)



If they have to complete the 12 units work in $\frac{1}{4}$ of day .

So it means their combined efficiency should be 48 units/day.

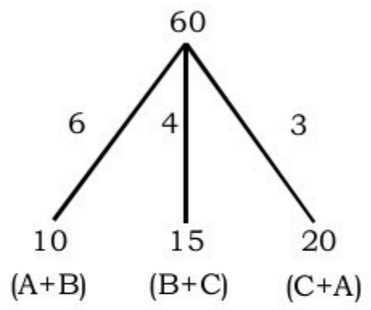
(1man + 1woman)'s efficiency = 4 + 3 = 7 units

unit left = 48 – 7 = 41 units

Now No. of boys required

$= \frac{\text{T.W}}{\text{eff of a boy}} = \frac{41}{1} = 41$ boys

9. (b)



A + B + C work 13/2 units/day

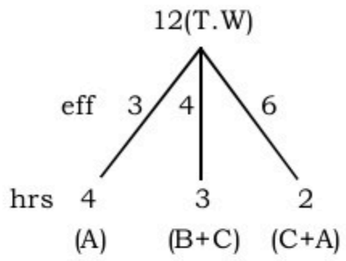
A + B work 6 unit/day

C work/day = [(A + B + C) – (A + B)]

$= \frac{13}{2} - \frac{6}{1} = \frac{1}{2}$ unit/day

C will finish in $\frac{60}{\frac{1}{2}} = 120$ days

10. (b)

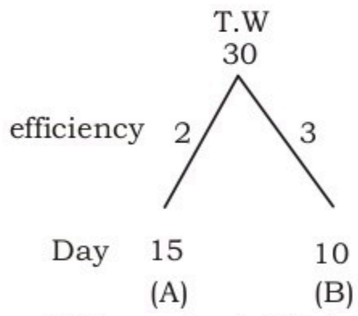


If (A + C)'s one day work = 6 units and A's one day work = 3 units then C's one day work = 6 – 3 = 3 units. (B + C)'s one day work = 4 units then B's one day work = 1 unit.

B can complete the whole work in

$$\frac{\text{T.W}}{\text{eff of B}} = \frac{12}{1} = 12 \text{ hrs}$$

11. (d)



If A and B worked till last with same efficiency. Then their profit/wages will be divided in the ratio of efficiency

A : B = 5

2 : 3 = 5

⇒ ×6000 ×6000

12000 30,000

12. (d) A can do $\frac{1}{2}$ of a piece of work in 5 days

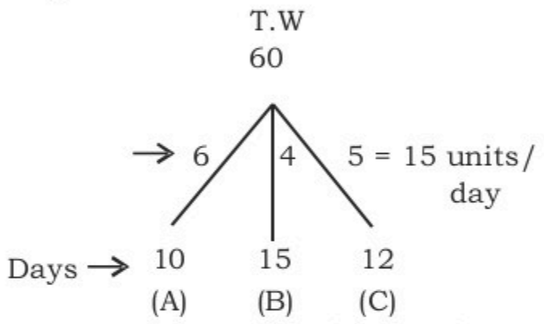
A can do 1 unit of the work in

$\frac{5\times2}{1}$ = 10 days

Similarly B complete 1 unit of work in = $\frac{9\times5}{3}$ = 15 days

C complete 1 unit of work in

= $8\times\frac{3}{2}$ = 12 days



= A + B + C one day work

= 15 units

⇒ They will complete the whole work in

$\frac{60}{15}$ = 4 days

13. (a) A man and a boy get ₹ 800 for 5 days

A man and a boy get ₹ $\frac{800}{5}$

= 160 for 1 day.

If man is twice efficient than boy. So their efficiency will be in ratio of M : B = 2 : 1.

Daily wages of the boy is

$\frac{1}{3}\times 160 = ₹53\frac{1}{3}$

14. (b) Try to solve these kind of question by option

Because of his being absent he was paid ₹ 750 less. Now check with option. Since max. possible daily wages is asked so it will be 250.

or

It is required to find the highest common factor (HCF) of 5750 and 5000

5000) 5750 (1
5000
750) 5000 (6
4500
500) 750 (1
500
250) 500 (2
500
×

15. (a) Let total work be 50 units

$\frac{4}{5}$ × any multiple of 5

A does $\frac{4}{5}$ th of work → $\frac{4}{5}\times50$

= 40 units in 20 days

So,

A does 2 units/day

work left : 50 – 40 = 10 units

A's 3 days work = 2 units/day × 3 days

= 6 units

∴ Left work = 10 – 6 = 4 units

So,

B's work per day = $\frac{4}{3}$

B will do whole work in

= $\frac{50}{\frac{4}{3}} = 37\frac{1}{2}$ days

16. (c) Let total work be 1 unit

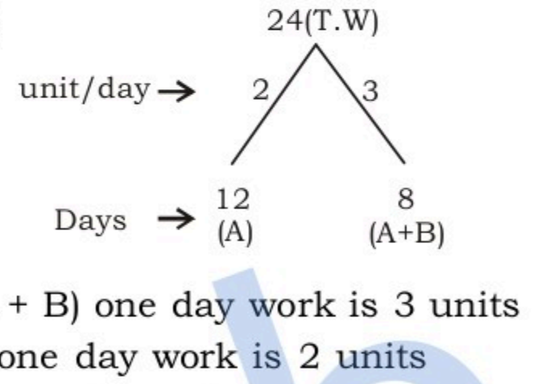
A and B completes $1-\frac{7}{10}=\frac{3}{10}$ of work in 4 days.

They will complete the whole work in

$\frac{3}{10}$ work in 4 days

1 work in $\frac{4\times10}{3} = 13\frac{1}{3}$ days

17. (a)



(A + B) one day work is 3 units

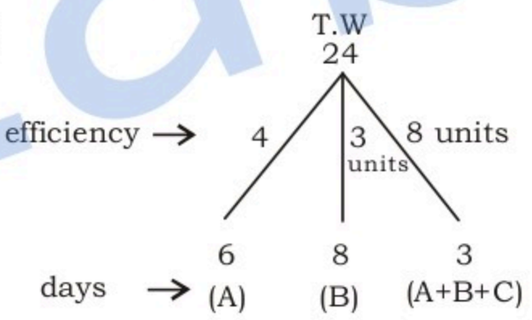
A one day work is 2 units

B's one day work = 3 – 2= 1unit/day

B will complete the whole work in

$\frac{\text{T.W}}{\text{Unit done per day}} = \frac{24}{1}$ = 24 days

18. (b)



C's efficiency is (A + B + C)'s efficiency – (A + B)'s efficiency 8 – 7 = 1 unit/day

So, C's share will be in ratio

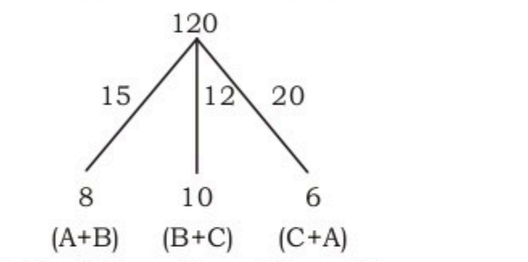
C : Total

1 : 8

×400 ×400

₹400 ₹3200

19. (c)



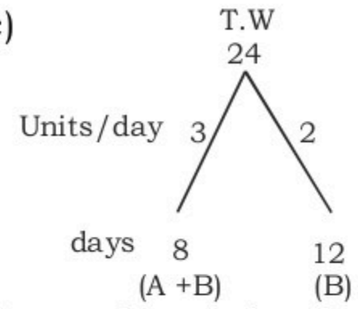
eff of : 2(A + B + C) = 47

A + B + C = $\frac{47}{2}$

(A + B + C) will complete the whole work in

$\frac{120}{\frac{47}{2}} = \frac{240}{47} = 5\frac{5}{47}$ days.

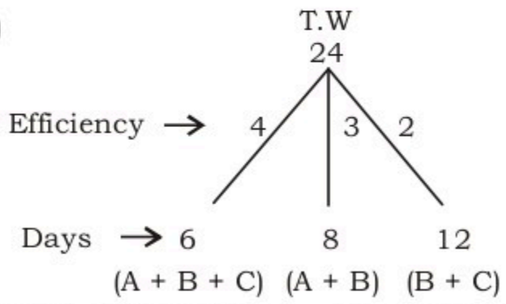
20. (c)



B's one day work = 2 units/days
A's one day work = 3 – 2 = 1 unit/ day
4 days work of 'B' = 4 × 2 units/ days = 8 units
work left = 24 – 8 = 16 units
A will complete the remaining work in

$$\frac{16 \text{ units}}{1 \text{ unit/day}} = 16 \text{ days}$$

21. (a)



A's one day work = 4 – 2 = 2 units.
B's one day work = 3 – 2 = 1 unit
C's one day work = 2 – 1 = 1 unit
A and C complete the whole work in

$$\frac{\text{T.W}}{\text{eff. of A+C}} = \frac{24}{2+1} = 8 \text{ days}$$

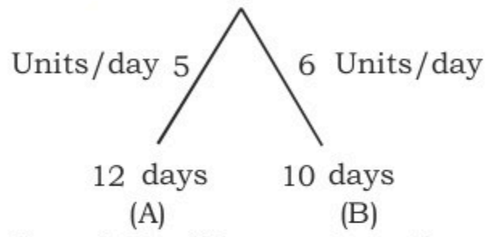
22. (b) A completes $\frac{2}{3}$ units in 8 days

A completes 1 unit in $8 \times \frac{3}{2} = 12$ days

B completes $\frac{3}{5}$ unit of work in 6 days

B completes 1 unit of work in $6 \times \frac{5}{3} = 10$ days

60



A and B will complete the whole work in

$$\frac{(\text{T.W})}{(\text{efficiency of A+B})} = \frac{60}{6+5} = 5\frac{5}{11} \text{ days}$$

23. (c) P completes $\frac{1}{4}$ of work in 10 days

P completes full of work in $\frac{10}{1} \times 4$ = 40 days

Q completes 40% of work in 145 days
Q completes full 100% of work in

$$= \frac{145}{40} \times 100 = 362.5 \text{ days}$$

R completes $\frac{1}{3}$ of work in – 13 days
R completes full of work in

$$\frac{13}{1} \times 3 = 39 \text{ days}$$

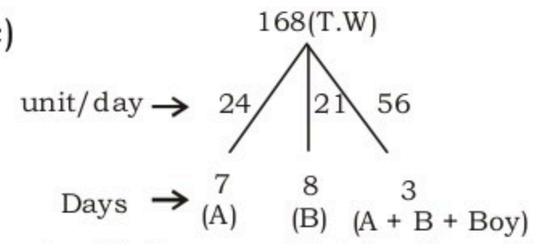
S completes $\frac{1}{6}$ of work in 7 days

S completes full of work in

$$\frac{7}{1} \times 6 = 42 \text{ days}$$

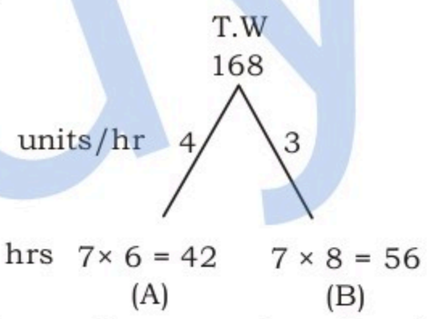
clearly, we can see R completes the work first.

24. (c)



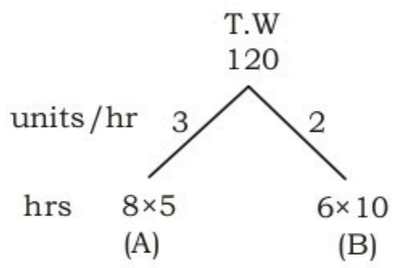
Boy's efficiency = Total eff. – eff. of A +B
= 56 – (24 + 21) = 11
For 56 units (A + B + Boy) get ₹ 1400
∴ 1 units (A + B + Boy) = ₹ 25
boy get 11 units = 25 × 11 = ₹ 275

25. (a)



A + B one hour work = 7 unit
⇒ (A+B)'s 8 hours work = 8 × 7 = 56 units/day
(A+B) complete the whole work in = $\frac{168}{56}$ = 3 days

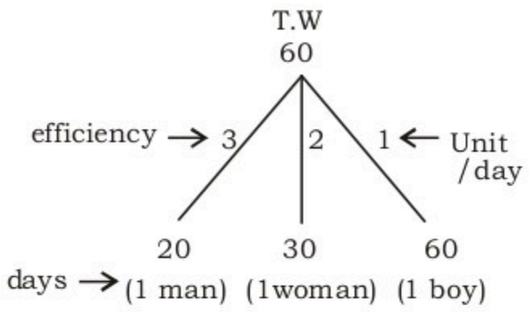
26. (a)



A and B do 5 units/hour so they will do 5 × 8 = 40 units in 8 hours or a day. and the whole work will be complete in

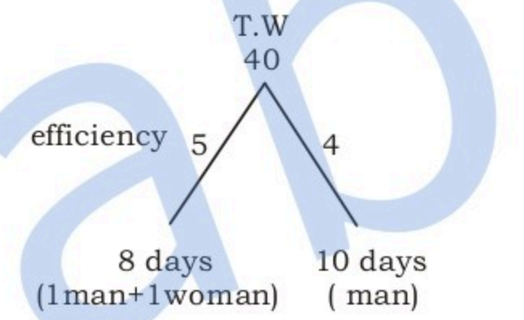
$$= \frac{\text{T.W}}{40 \text{ units/day}} \Rightarrow \frac{120}{40} \Rightarrow 3 \text{ days}$$

27. (a)



(2 men and 8 women)'s one day work is
= [(2 × 3)+ (8 × 2]
= 6 + 16 = 22 units
In 2 days (2 men + 8 women) will do = 44 units Remaining work 60 – 44 = 16 units will be completed by boys in 2 days.
So, 8 units of work will be done by boys in 1 day and one boy does one units/days. So 8 boys are required to do 8 units.
= 8 boys

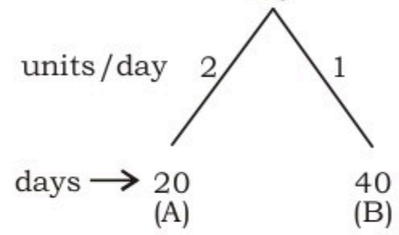
28. (c)



(M + W) one day work = 5 units
M's one day work = 4 units
So,
woman's one day work = 5 – 4 = 1 unit
Woman will complete in

$$= \frac{40}{1} = 40 \text{ days}$$

29. (a)

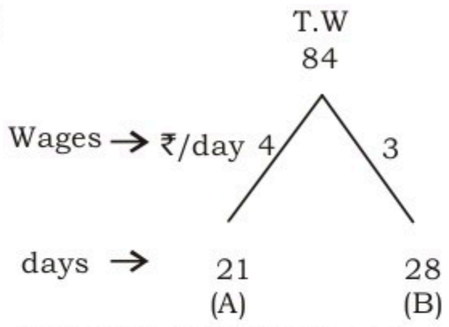


(A + B)'s one day work is (2 +1) units
(A + B)'s 5 day work is 3 × 5 = 15 units
work left = 40 –15 = 25

$$\text{fraction of work left} = \frac{\text{work left}}{\text{total work}}$$

$$= \frac{25}{40} = \frac{5}{8}$$

30. (d)



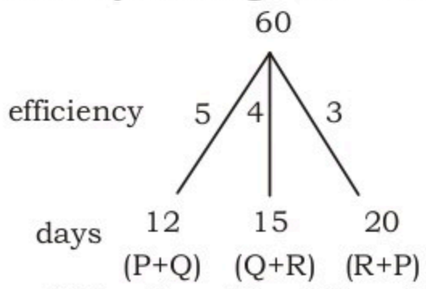
(A+ B)'s one day wage = 4 + 3
= ₹ 7

Money(₹ 84) is sufficient to pay wages for

$\Rightarrow \frac{84}{(4+3)} \frac{(\text{total money})}{\text{one day wages}} \Rightarrow 12$ days

31. (b) (A + B + C)'s one day earning = ₹150
(A + C)'s one day earning = ₹ 94
B's one day earning = (A +B +C) –(A + C) = 150 – 94 = ₹ 56
(B + C)'s one day earning = ₹ 76
C's one day earning = 76 – 56 = ₹ 20

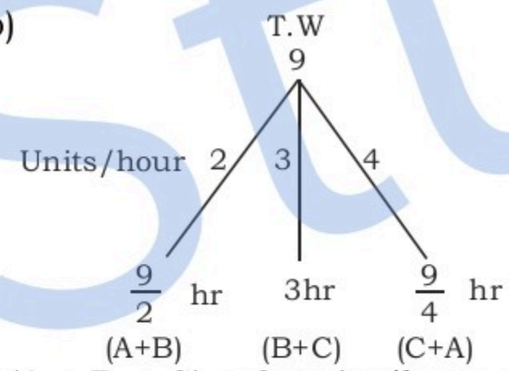
32. (c)



= 2(P + Q + R) = 12 units
P + Q + R = 6 units
Q + R = 4 units
P = 6 – 4 = 2 units/day
P alone will complete in

$= \frac{60}{2} = 30$ days

33. (b)

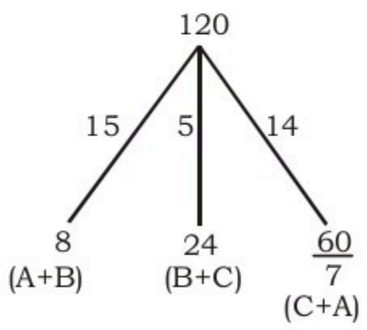


= 2(A + B + C) = 9 units/hour (A + B + C) = $\frac{9}{2}$ units/hour

(A + B + C) will complete whole work in

$\frac{\text{T.W}}{\text{units/hour}} \quad \frac{9}{\frac{9}{2}} = 2$ hours

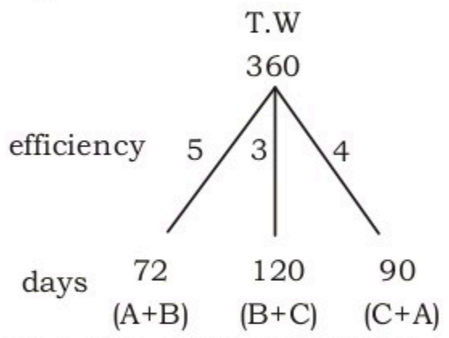
34. (a)



efficiency
2(A + B + C) = 34 units/day
(A + B + C) = 17 units/day
A + B = 15 units/day
So,
C = 17 – 15 = 2 units/day.
C will complete the whole work in

$\frac{120}{2} = 60$ days

35. (c)



2(A + B + C) = 12 units/day
(A + B + C) = 6 units/day
In 3 days.
A + B + C will do = 6 × 3 = 18 units
In 3 days the part of work will finish in $= \frac{\text{3 days work}}{\text{T.W}} = \frac{18}{360}$

$= \frac{1}{20}$

36. (d) Skilled half skilled unskilled

efficiency $\frac{1}{3} : \frac{1}{4} : \frac{1}{6}$

efficiency 4 : 3 : 2

Skilled halfskilled unskilled

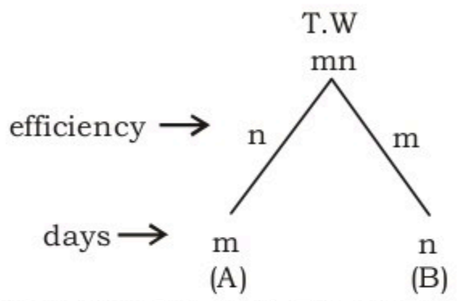
No. of days worked = 7 8 10

work done = (7 × 4) + (8 × 3) + (10 × 2)
= 72

Trained labourer gets :

$\frac{28}{72} \times 369 = 143.50$

37. (d)



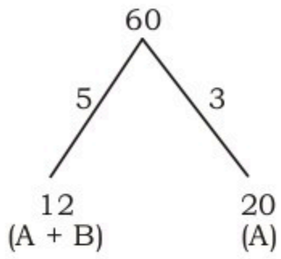
efficiency of A and B = m + n
(A + B) completes the work in

$\frac{\text{T.W}}{\text{efficiency (A+B)}} = \frac{mn}{m+n}$ days

38. (b) According to question,
If the total work is 23 units. A and C completed 19 units together. It means 23 – 19 = 4 units is completed by B
So amount paid to B is

$= \frac{4}{23} \times 575 = ₹100$

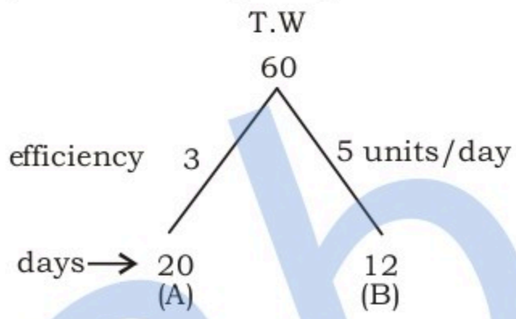
39. (d)



(A+ B)'s one day work = 5 units
A's one day work = 3 units
B's one day work = 2 units
B's half day work = 1 units
Now,
(A + B)'s work/day = 3 + 1 = 4 units
Work done by (A + B) in

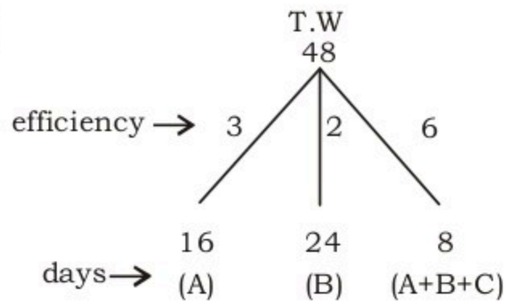
$= \frac{60}{4} = 15$ days

40. (a) According to question,



9 days work of B is 9 × 5 units
= 45 units
Work left = 60 – 45 = 15 units
Now, A can finish remaining work in $\frac{15}{3} = 5$ days

41. (c)



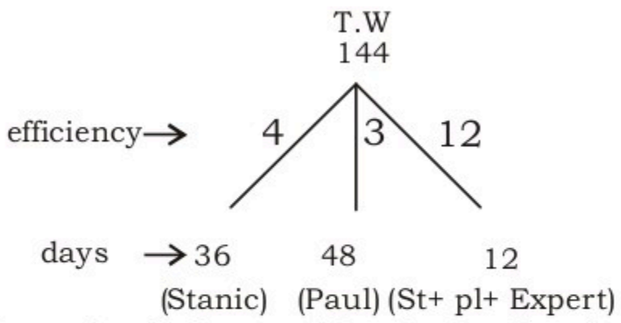
C's one day work or efficiency is
6 – 3 – 2 = 1 unit
As we know, wages/Rupees/ profit always divided in ratio of efficiency/ratio of part of work done to total work.
Here,

A+B+C : C
6 : 1
×160 ×160
₹ 960 **₹160**

42. (a)

	Earlier	:	Now
No of worker	15	:	11
Wages	22	:	25
Total wages	330		275
Total wages	**6**	**:**	**5**

43. (d)



Expert's efficiency : 12 – 4 – 3 = 5 units

Remuneration of expert:

$\frac{5}{12} \times 28,800 = ₹12000$

44. (c) x = 4hr, 2; y = 8hr, 1; 8

$x + y = \frac{8}{3}h = 160$ minutes

45. (c) $X = \frac{1}{4}w = 6\,D = 24D$, 2; $y = \frac{3}{4}w = 12\,D = 16D$, 3; 48

$(x + y) = \frac{48}{5} = 9\frac{3}{5}$ days

46. (d) Janardan completes $\frac{2}{3}$ of work in 10 days

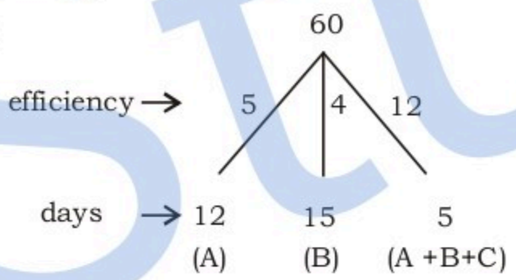
Janardan completes 1 of work in

$= \frac{10 \times 3}{2} = 15$ days

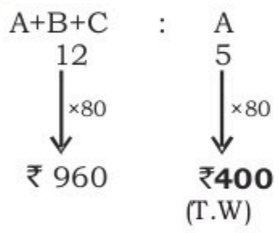
Janardan completes $\frac{3}{5}$ of work in

$= 15 \times \frac{3}{5} = 9$ days

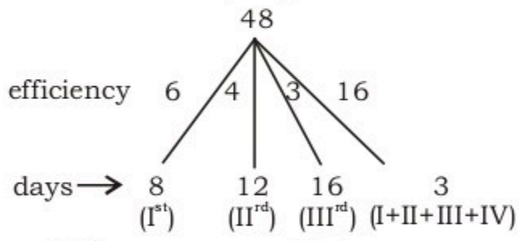
47. (d)



Now,



48. (c)



⇒ IVth person efficiency

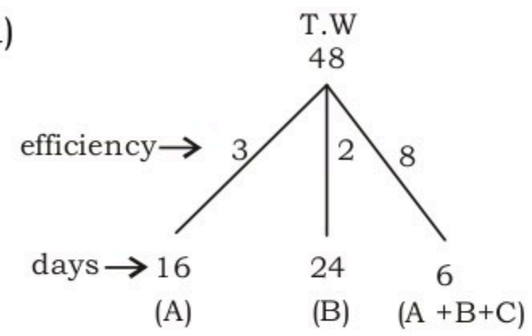
= 16 – 6 – 4 – 3 = 3 units

16 units → 1200

1 unit → 75

3 units → ₹ 225

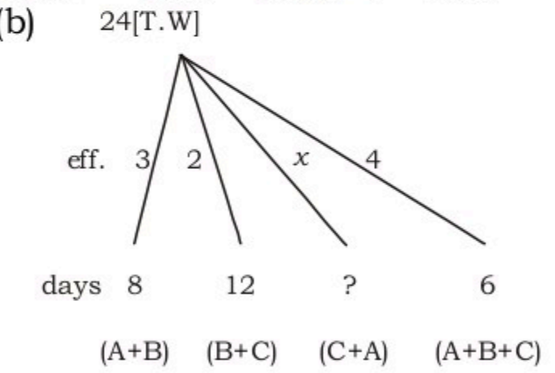
49. (a)



C's efficiency = 8 – 3 – 2 = 3 units

A	:	B	:	C		Total
3	:	2	:	3	=	8
×50		×50		×50		×50
₹ 150		₹100		**₹150**	←	₹400

50. (b)



Let efficiency of (C+A) is 'x' unit per day

A+B+C one day work = 4 units

2(A + B + C) one day work 2 = 8 units

One day work of (A+B) + (B+C) + (C+A) = 2 (A+B+C)

3 + 2 + x = 8, x = 3 units/day

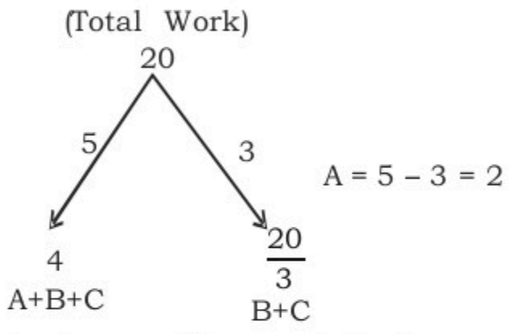
Total days = $\frac{\text{T.W}}{\text{eff.}} \Rightarrow \frac{24}{3} = 8$ days

51. (b) $\frac{3}{10}$ (B + C) = 2 days

$B + C = 2 \times \frac{10}{3} = \frac{20}{3}$ days

$\frac{1}{2}$ (A + B + C) = 2 days

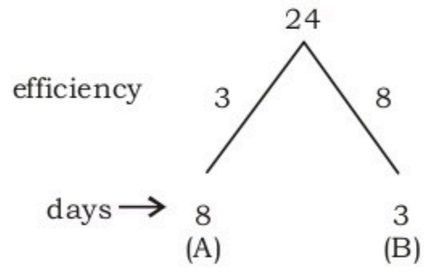
A + B + C = 4 days



A alone will complete the work

$= \frac{20}{2}$ days = 10 days

52. (b)



A construct in 6 days

6 × 3 = 18 units Construct

B destroys = 8 × 2 = 16 units

now work left after destroying by B = 18 – 16 = 2 units

Now A will do 24 – 2 = 22 units

A completes in = $\frac{22}{3} = 7\frac{1}{3}$ days

53. (d) Since we know efficiency and time are inversely proportional to each other.

	P	:	Q
efficiency	3	:	4
time	4	:	3

54. (b) (6m + 8b)× 10 days

= (26m + 48b) ×2 days

$\left[\frac{m_1 \times t_1 \times d_1}{w_1} = \frac{m_2 \times t_2 \times d_2}{w_2}\right]$

30m + 40b = 26 m + 48b

4m = 8b

m = 2b

$\frac{m}{b} = \frac{2}{1}$

1m (work) = 2 units/day

1b (work) = 1 unit/day

Hence,

Total work

= (6 × 2 + 8 × 1) × 10

= 200 units

Required time

(15m+ 20b)

$= \frac{200}{(15 \times 2 + 20 \times 1)} = \frac{200}{50} = 4$ days

55. (b) 5M × 6 days = 10W × 5 days

3M = 5W

$\frac{M}{W} = \frac{5}{3}$

1M (work) = 5 units/day

1W (work) = 3 units/day

Hence,

Total work = (5M × 6) = 5 × 5 × 6

= 150 units

Required time for (5W + 3M)

$= \frac{\text{Total work}}{\text{Work done/day}}$

$\frac{150}{(5 \times 3 + 3 \times 5)} = \frac{150}{30} = 5$ days

56. (a) $\left[\frac{m_1 \times t_1 \times d_1}{w_1} = \frac{m_2 \times t_2 \times d_2}{w_2}\right]$

$\frac{10M \times 20 \text{ days}}{260 \text{Mats}} = \frac{20B \times 20 \text{days}}{260 \text{ mats}}$

$10M = 20B$

$1\ M = 2B$

$\therefore \frac{M}{B} = \frac{2}{1}$

$\therefore$ 1M work = 2 units/day

1B work = 1 unit/day

Mats made by (8M + 4B) in 20 days

$\frac{10\ M \times 20 \text{ days}}{260 \text{ Mats}} = \frac{(8M+4B) \times 20 \text{ days}}{x \text{ mats}}$

$\frac{10 \times 2 \times 20 \text{ days}}{260 \text{ m}} = \frac{20 \times 20 \text{ days}}{x \text{ m}}$

after solving,

x = 260 mats

57. (c) ATQ,

$3m \times 16 = 6w \times 16$

$\frac{m}{w} = \frac{2 \rightarrow \text{efficiency of man}}{1 \rightarrow \text{efficiency of woman}}$

Total work = $3 \times 2 \times 16 = 96$ units

One day work of (12m+8w)

$= 12 \times 2 + 8 \times 1 = 32$ units

Total time taken by (12m+8w)

$= \frac{96}{32} = 3$ days

58. (d) If no. of days at work is same.
So we can equate directly

16 men = 20 women

4 men = 5 women

5 women = 4 men

1 women = $\frac{4}{5}$ men

15 women = $\frac{4}{5} \times 15$

15 women = 12 men

$\Rightarrow$ 16 men complete a work in 25 days

1 men completes a work in

= 400 days

28 men + 15 women = ?

$\downarrow$

28 men + 12 men = 40 men

work in $\frac{25 \times 16}{40} = 10$ days

Alternate

16M or 20W $\longrightarrow$ 25 days

28M and 15W $\longrightarrow$?

$\frac{16 \times 20 \times 25}{(16 \times 15) + (20 \times 28)} = 10$ days

59. (d) ATQ,

$3m \times 43 = 4w \times 43$

$\frac{m}{w} = \frac{4 \rightarrow \text{efficiency of man}}{3 \rightarrow \text{efficiency of woman}}$

Total work = $3 \times 4 \times 43$ units

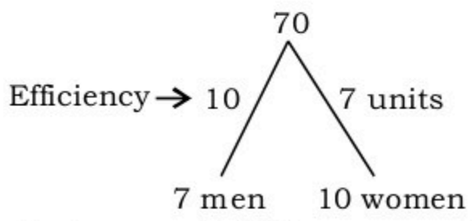
One day work of (7m+5w)

$= 7 \times 4 + 5 \times 3 = 43$ units

Total time taken by (7m+5w)

$= \frac{3 \times 4 \times 43}{43} = 12$ days

60. (a)



$\Rightarrow$ efficiency of (14 men + 20 women)

$= (14 \times 10) + (20 \times 7)$

$= 140 + 140$

$= 280$

Let 'D' days taken.

$\frac{(7 \times 10) \times 10}{100} = \frac{280 \times D}{600}$

D = 15 days

61. (a) According to question,

$(2 \text{ men} + 1 \text{women}) \times 14_{\text{days}}$

$= (2 \text{ men} + 4 \text{ women}) \times 8_{\text{days}}$

14 men + 7 women = 8 men + 16 women

6 men = 9 women

2 men = 3 women

1 man gets = ₹600/day

2 men get = ₹ 1200/day

(wages always divided in the ratio of efficiency)

So,

3 women will get = ₹ 1200/days

{[2m = 3w]

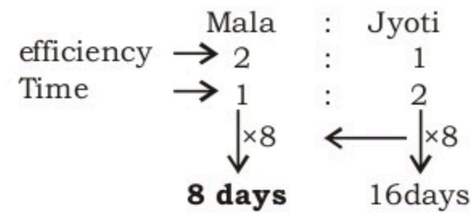
1 woman will get = 400/days

62. (b) Jyoti does $\frac{3}{4}$ unit of work in 12 days

jyoti does 1 unit of work in

$= 12 \times \frac{4}{3} = 16$ days

According to question



63. (c) According to question

A : B : C

efficiency 2 : 1

2 : 1

$\Rightarrow$ 4 : 2 : 1units/days

(A+B)'s one day work is (4+2) units = 6 units

and they complete in 4 days.

So total work : $6 \times 4 = 24$ units

and C completes whole work in

$= \frac{24 \text{ units}}{1 \text{ units/day}} = 24$ days

64. (c) If no. of days remain same Like in this question for men, women and boys, so it clearly shows

1 man = 2 women = 3 boys

(It means work done by one man in 88 days will be done by 2 women in 88 days so this shows efficiency)

1 man = 2 women

$\frac{1}{2}$ man = 1 woman

similarly

1 boy = $\frac{1}{3}$ man

1 man + 1 woman + 1 boy will do work in :

1 man + $\frac{1}{2}$ man + $\frac{1}{3}$ man

$\frac{6+3+2}{6} = \frac{11}{6}$ men

1 man does in 88 days

$\frac{11}{6}$ man does in = $\frac{88 \times 6}{11}$

= 48 days

65. (b) Tapas : Mihir

efficiency 2 : 1

units/day

T + M complete in 12 days

Total work $12 \times (2 + 1) = 36$ units

Tapas alone complete the whole work in

$\Rightarrow \frac{36}{2} = 18$ days

66. (b) According to question,

$(2m + 3w) = 4\ m$

$3w = 4m - 2m$

$3w = 2m$

$3m + 3w = 3m + 2m$

$3m + 3w = 5m$

4 men can do work in 20 days

1 man can do work in 20×4

5 men can do work in $\frac{20 \times 4}{5}$

$= 16$ days

Alternate:

$(2M + 3W) \times 20 = 4M \times 20$

$\frac{M}{W} = \frac{3}{2}$

Total work $= (2 \times 3 + 3 \times 2) \times 20$

$= 240$ units

5 men efficiency $= 5 \times 3 = 15$

Required no. of days $= \frac{240}{15}$

$= 16$ days

67. (a) $20M \times 20$ days $= 24\ W \times 20$ days

$5\ M = 6\ W$

$\downarrow \times 6 = \downarrow \times 6$

$30\ M = 36\ W$

So, $(30M + 12W)$ complete the whole work in

$24W \times 20 = (30M + 12W) \times x$

$24W \times 20 = (36W + 12W) \times x$

$24W \times 20 = 48W \times x$

$x = 10$ days

Alternate:

$20M \times 20$ days $= 24W \times 20$ days

$5M = 6W$

$\frac{M}{W} = \frac{6}{5}$

Total work $= 20 \times 6 \times 20$ units

Efficiency of $(30M + 12W)$

$= 30 \times 6 + 12 \times 5$

$= 180 + 60 = 240$

Required no. of days

$= \frac{20 \times 6 \times 20}{240} = 10$ days

68. (b) $20W \times 16 = 16M \times 15$

$20W = 15M$

$4W = 3M$

$\frac{M}{W} = \frac{4}{3}$

$\therefore$ Man : Woman

4 : 3

69. (b) Equating the work

$(2M + 3W) \times 10 = (3M + 2W) \times 8$

After solving

We get, $2M = 7W$

$\frac{M}{W} = \frac{7}{2}$

Total work $= (2 \times 7 + 3 \times 2) \times 10$

$= 20 \times 10$

$= 200$ units

eff. of $2M + 1W = 2 \times 7 + 2 = 16$

$\therefore$ number of days $= \frac{200}{16} = \frac{25}{2}$

$= 12\frac{1}{2}$ Days

70. (b) $\frac{5 \text{ men} + 2 \text{ women}}{4 \text{ work}}$ = (1 man + 1woman)

5 men + 2 women = 4 men + 4 women

1man = 2 women

$\frac{\text{man}}{\text{woman}} = \frac{2}{1}$

M : W

2 : 1

71. (c) According to question,

8 men = 17 women

(Because they do a work in same no. of days)

Convert men into women

$8\text{men} = 17\text{women}$

$\downarrow \times \frac{3}{2} \quad \downarrow \times \frac{3}{2}$

12 men $\quad \frac{51}{2}$ Women

Total work $= 17 \times 33 \times 3$

(Let 1 woman works 1 unit/day then 17 women will do 17 units/day)

12 men + 24 women

$\frac{51}{2}$ women $+ \frac{24}{1}$ women $= \frac{99}{2}$ women

$\rightarrow$ will do (17×33) work in

$\Rightarrow \frac{17 \times 33}{\frac{99}{2}} \times 3 = 34$ days

72. (a) (3 men + 4 boys) 12 days

= (4men + 3 boys) 10 days

18 men + 24 boys = 20 men + 15 boys

2 men = 9 boys.....(i)

4 men + 3 boys = (2 × 9) boys + 3 boys = 21 boys

21 boys can do a work in 10 days

Total work = 21 × 10 = 210 units

2 men + 3 boys = 9 boys + 3 boys (from eq (i))

= 12 boys

12 boys can do 210 units in

$\frac{210}{12} = \frac{35}{2} = 17\frac{1}{2}$ days

Alternate:

$(3M + 4B) \times 12 = (4M + 3B) \times 10$

$2M = 9B$

$\frac{M}{B} = \frac{9}{2}$

Total work $= (3 \times 9 + 4 \times 2) \times 12$

$= 35 \times 12$ units

Efficiency of 2 men and 3 boys

$= (2 \times 9) + (3 \times 2) = 24$

Time taken by $(2M + 3B)$

$= \frac{35 \times 12}{24} = 17\frac{1}{2}$ days

73. (a) According to question,

8 men = 12 boys (Description same as Q 104)

4 men = 6 boys

20 men + 6 boys = (20 + 4)men

= 24 men

8 men can do a piece of work in 16 days

24 men can do a piece of work in

$= \frac{16 \times 8}{24} = 5\frac{1}{3}$

Alternate

$8M \times 16 = 12B \times 16$

$8M = 12B$

$\frac{M}{B} = \frac{3}{2}$

Total work $= 8 \times 3 \times 16$ units

Efficiency of $(20M + 6B)$

$= 20 \times 3 + 6 \times 2 = 72$ units/day

No. of days $= 5\frac{1}{3}$ days

74. (d) 10 men = 20 women = 40 children (efficiency of men, women and children will be in calculated by this ratio. As they complete work in same days)

convert them in one figure:

10 men = 20 women

$\frac{10}{20}$ men =1 women $\rightarrow$ 5 women

$= \frac{1}{2}\times 5 = \frac{5}{2}$ men .....(i)

$\frac{1}{4}$ men = 1 child $\rightarrow$ 5 children

$= \frac{1}{4}\times 5 = \frac{5}{4}$ men .....(ii)

5 men + 5 women + 5 children

$= \left(5+\frac{5}{2}+\frac{5}{4}\right)$ men

$= \frac{20+10+5}{4} = \frac{35}{4}$ men

Now.

If 10 men can do a work in 7 months

If 1 men can do a work in 7 × 10

If $\frac{35}{4}$ men can do a work in

$\frac{7\times 10}{\frac{35}{4}}$ = 8 months

Alternate

10M × 7 Months = 20W × 7 Months

= 40C × 7 months

10M = 20W = 40C

1M = 2W = 4C

$\frac{M}{4} = \frac{W}{2} = \frac{C}{1} \leftarrow$ Efficiency

Total work = 10 × 4 × 7 units

Efficiency of 5M + 5W + 5C

= 5 × 4 + 5 × 2 + 5 × 1

= 5(4 + 2 +1)

= 35 units/day

Time taken by (5M + 5W + 5C)

$= \frac{10\times 4\times 7}{35}$ = 8 months

75. (c) According to question,

(2 men + 3 boys)×10 days

= (3 men + 2 boys)× 8 days

20 men + 30 boys = 24 men + 16 boys

2 men = 7 boys

2men + 1 boy = 7boys + 1 boy = 8 boys

from i^{st} line:

2 men + 3 boys $\Rightarrow$ 7 boys + 3 boys

$\Rightarrow$ 10 boys (Given)

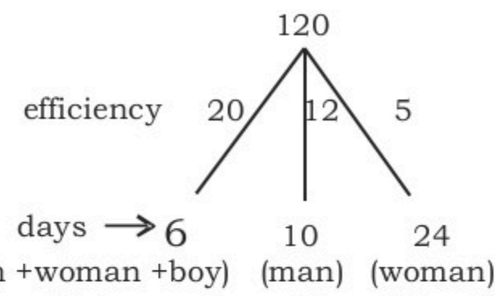
10 boys can do a piece of work in 10 days

1 boys can do a piece of work in 10 × 10 days

8 boys can do a piece of work in

$\frac{10\times 10}{8} = 12\frac{1}{2}$ days

76. (c)



boy's efficiency is = 20 – 12 – 5

$\Rightarrow$ 3 units/day

1 boy can complete the work in

$= \frac{120}{3}$ = 40 days

77. (d) 40 men = 60 women = 80 children

2 men = 3 women = 4 children

2 men = 3 women

1 women = $\frac{2}{3}$ men $\rightarrow$ 10 women

$\rightarrow \frac{2}{3}\times 10 = \frac{20}{3}$ men

Similarly

2 men = 4 children

1 children = $\frac{1}{2}$ men $\rightarrow$ 10 children

$= \frac{10}{2}$ = 5 men

10 men + 10 women + 10 children

$= 10 \text{ men} + \frac{20}{3}+5 \Rightarrow \frac{30+20+15}{3}$

10 men + 10 women + 10 children

$= \frac{65}{3}$ men

40 men can do a piece of work in 6 months

1 man can do a piece of work in 6 × 40

$\frac{65}{3}$ men can do a piece of work

in $\frac{6\times 40}{\frac{65}{3}} = 11\frac{1}{13}$ months

Alternate:

40 m = 60 w = 80 c

2 m = 3 w = 4 c

m : w : c = 6 : 4 : 3 (Efficiency)

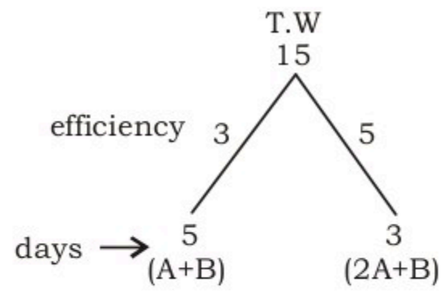
Total work = 40 × 6 × 6

= 1440 units

Total time taken by (10m + 10w + 10c)

$= \frac{\text{Total work}}{\text{Efficiency}} = \frac{1440}{130} = 11\frac{1}{13}$ days

78. (c)



Now,

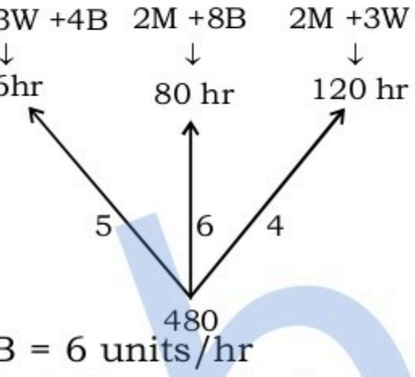
assume A's eff. is 2 units B's is 1 unit. So it satisfies the equation of both cases

So actual efficiency of A is 2 units/day

A alone can complete the work in

$\frac{\text{T.W}}{\text{efficiency}} = \frac{15}{2} = 7\frac{1}{2}$ days

79. (c)



2M + 8B = 6 units/hr

So, 1M + 4B = 3 units/hr

1M + 3W + 4B = 5 units/hr

3W + 3 = 5

3W = 2 units/hr

W= $\frac{2}{3}$ unit/hr

Now,

2M + 3W = 4

2M = 4 – 2 = 2

M = 1unit/hr

Hence,

2M + 8B = 6

2 + 8B = 6

8B = 6 – 2 = 4

B = $\frac{1}{2}$ unit/hr

5M + 12B will complete the whole work in

$= \frac{480}{5M+12B} = \frac{480}{5\times 1+\frac{12}{2}} = \frac{480}{11}$

$= 43\frac{7}{11}$ hrs.

80. (d) (3 men + 7 women) × 5_{days}

= (4 men + 6 women)×4_{days}

1 man = 11 women

3 men + 7 women

= (3 × 11) women + 7 women

= 40 women

40 women can do a work in 5 days

1 woman can do a work in 5 × 40 days

10 women can do a work in $\frac{5\times 40}{10}$

= 20 days

81. (c) According to questions,

1 man = 2 women = 3 boys

1 man = 2 women; 1 man = 3 boys

$\frac{1}{2}$ man = 1 woman; $\frac{1}{3}$ man = 1 boy

1 man + 1 woman + 1 boy

= 1 man + $\frac{1}{2}$ man + $\frac{1}{3}$ man

= $\frac{11}{6}$ man

1 man can complete a work in 88 days.

$\frac{11}{6}$ man can complete a work in 88

$\frac{11}{6}$ = 48 days

82. (a) Given

⇒ 4m + 6w → 8 days

⇒ 32m + 48w → 1 day ..... (i)

⇒ 2m+ 9w → 8 days

⇒ 16m+ 72w → 1 day...(ii)

⇒ from equation (i) = (ii)

⇒ 32m + 48w = 16m + 72w

⇒ 32m – 16m = 72w – 48w

⇒ 16 m = 24 w

⇒ 2m = 3w

⇒ Here, it is given that a group of 4men + 6 women can do the work in 8 days, converting the whole equation into women.

⇒ 4m + 6w → 8 days

⇒ (2 × 2m)+6w → 8 days

⇒ (2×3w)+6w → 8 days

⇒ 6w + 6w → 8 days

⇒ 12w → 8 days

⇒ i.e 12 women can do the work in 8 days

⇒ Then a group of 18 women can do the work

$M_1 \times D_1 = M_2 \times D_2$

12w × 8d = 18w × ?

days = $\frac{12\times8}{18}$ ⇒ $5\frac{1}{3}$ days

83. (a) According to the question,

15men = 20 days

300 men= 1 day ..... (i)

24 women = 20 days

480 women = 1 day ..... (ii)

Compare equation (i) and (ii)

300 men = 480 women

5 men = 8 women ..... (iii)

∴ 10men + 8 women = ?

10 men + 5 men = ?

15 men = ?

15men × 20 days = 15men × x days

x = 20 days

Alternate

15M × 20 days = 24W × 20 days

$\frac{M}{W} = \frac{8}{5}$

So, 1 man work 8 units work in one day

and 1 woman work 5 units work in one day.

Total work = 15×8 × 20

Hence, (10M + 8W) work whole work in 'D' days

(10M + 8W) × D = 15 × 8 × 20

(10×8 + 8×5) × D = 15 × 8 × 20

(80 + 40) × D = 15 × 8 × 20

D = 20 days

84. (c) According to question,

3 men = 5 women

(As they complete the same work in same time)

6men + 5women = 6men + 3men

= 9 men

If, 3 men does a work in 12 days

1 men does a work in = 12 × 3

9 men does a work in $\frac{12\times3}{9}$

= 4 days

Alternate

3M × 12 = 5W × 12

$\frac{M}{W} = \frac{5}{3}$

Total work = 3 × 5 × 12 = 15 × 12

= 180 units

Efficiency of 6 M+ 5W

= (6× 5 + 5× 3) = 45

Time taken by (6M + 5W)

= $\frac{180}{45}$ = 4 days

85. (a) 10M × 12 days = 10W × 6 days

2M = 1W

$\frac{M}{W} = \frac{1}{2}$

1M work = 1 unit/day

1W work = 2 units/day

Total work = 10M × 12 days

= 10 × 1× 12

= 120 units

Time required (10M + 10W)

= $\frac{\text{Total work}}{\text{eff.}}$

= $\frac{120}{10\times1+10\times2} = \frac{120}{30}$ = 4 days

86. (a) Let 'x' are the men in working

by formula $\frac{M_1D_1}{W_1} = \frac{M_2D_2}{W_2}$

$\frac{x\times30}{1} = \frac{(x+5)\times20}{1}$ (30–10=20 days)

3x = 2x + 10

x = 10

87. (c) Let additional men be x

$\frac{25\times24}{work\to\frac{1}{3}} = \frac{(25+x)\times12}{\frac{2}{3}\left(\text{Remaining work } 1-\frac{1}{3}\right)}$

x = 75

88. (c) **A.T.Q**

	A	:	B
no. of unit of work done	1	:	2
time taken	1	:	6

we balance the time of A with B. We have to equal their work according to their time

	A :	B	A + B work
work done	6 :	2	↓
time taken	6 :	6	

If A works 1 unit in 1 unit time so he works 6 units work in 6 units time

A : B = 3 : 1 → 3 + 1 = 4 units/day

Together they complete in 10 days. So, total work

= 4 × 10 = 40

B alone will do whole work in $\frac{40}{1}$

= 40 days

89. (c) ATQ,

If kamal is 100% efficient, then Bimal 150% efficient (50% more),

$\left[\frac{B}{K} = \frac{150}{100} = \frac{3}{2}\right]$

	Kamal	Bimal
efficiency →	2 units/day	3 units/day

Total work: 15 days × 2 units/day

= 30 units

Bimal will do that work

= $\frac{30}{3}$ = 10 days

90. (c) let 1 men does 1 unit of work per day

Total work: 8 × 12 = 96 units

6 days work of 8 men

$\rightarrow$ 8 × 6 = 48 units.

work left $\rightarrow$ 96 – 48 = 48 units

After 6 days 4 men join. so total men is 12 men (8 + 4) they will do 12 unit of work per day

Now,

remaining work completed in

$\rightarrow \frac{48}{12}$ = 4 days

91. (b) Let no. of persons be 'N'

$$\frac{N\times 55}{1} = \frac{(N+6)\times 44}{1}$$

$$5N = 4N + 24$$

$$N = 24$$

92. (a) $\frac{8\text{ M} \times 9\text{h} \times 20\text{ days}}{1\text{ unit work}} = \frac{7\text{M} \times 10\text{h} \times x}{1\text{ unit work}}$

$$x = \frac{144}{7} = 20\frac{4}{7}\text{ days}$$

93. (b) According to formula

Let 'D' is no of days.

$$\frac{639\times 12\times 5}{1\text{ road}} = \frac{30\times 6\times D}{1\text{ road}}$$

D = 213 days

94. (a) Here work is 280 m length of wall and 100 m length of wall

Let 'M' men will finish 100 m wall.

$$\frac{72\times 21}{280} = \frac{M\times 18}{100} \Rightarrow M = 30$$

95. (c) $\frac{6_{person}\times 8_{hr}}{8400} = \frac{9_{person}\times 6_{hr}}{Amount}$

Amount earned by 9 person

= ₹ 9450

96. (a)

$$\frac{5_{person}\times 8_{days}\times 7_{hr}}{1} = \frac{(5+2_{person})\times 4_{day}\times H_{perday}}{1}$$

H = 10 hrs

97. (d) $\frac{4_{mat\text{-}weavers}\times 4_{day}}{4_{mats}} = \frac{8_{mat\text{-}weavers}\times 8_{days}}{N_{mats}}$

$\Rightarrow$ N = 16 mats

98. (a)

$$\frac{10_{men}\times 6_{hr}\times 18_{days}}{1work} = \frac{15_{men}\times 12_{days}\times H\text{ hr/day}}{1\text{ work}}$$

= 6hrs/day

99. (d) Let there were 'N' number of men in beginning.

$\Rightarrow N_{men} \times 60_{days}$

$= (N + 8)_{men} \times (60 - 10)$

6N = 5N + 40

N = 40

100. (a)

$$\frac{12\text{persons}\times 4\text{days}}{1\text{work}} = \frac{\text{persons}\times 2\text{ days}}{8\text{ work}}$$

$\Rightarrow$ Persons = 192

101. (b) Let total no. of worker in beginning is 'N'

According to question,

$$\frac{N\times 100_{days}}{1work} = \frac{(N-10)\times 110_{days}}{1work}$$

100N = 110N – 1100

10N = 1100

$\Rightarrow$ N = 110

102. (b) According to Question,

Total work = 12M × 12D = 144 units

Work done by 12 men in 6 days

= 12 × 6 = 72 units

Rest work = 144 – 72 = 72 units

Required time for 6 men to complete the work

$= \frac{72}{6}$ = 12 days

Hence,

Total time = 12 + 6 = 18 days

Extra time = 18 – 12 = 6 days

103. (b) According to question

$$\frac{60_{men}\times 60_{days}}{\frac{3}{4}\text{ work}} = \frac{(60-n)_{men}\times 30_{days}}{\frac{1}{4}\text{ work}}$$

40 = 60 – n

n = 20

104. (b) 60 men work for 200 days. They stops for 10 day due to bad weather. so the work is to complete in

(50 – 10) = 40 days in order to complete in scheduled time i.e 250 days.

Let 'n' number of more man is required.

$(60_{men} \times 200_{days})$ + (60 + n) men × 40 days)

$= 60_{men} \times 250_{days}$

12000 + (60 + n) men × 40 day)

= 15000

(60 + n)40 = 3000

60 + n = 75

$\Rightarrow$ n = 15

Alternate

60men can complete a work in 250 days but they work for 200 days.

Then remaining days = 50 days

So, 60×50 = (60+x)×40

x = 15

105. (c) $\frac{28M\times 1week}{7/8} = \frac{x\times 1week}{1/8}$

x = 4 men

106. (d) According to question,

efficiency of a man, a woman and a child are

5 : 4 : 2. units/days.

one day work of 2 men

= 2 × 5 = 10 units

one day work of 3 women

= 3 × 4 = 12 units

one day work of 4 children

= 4 × 2 = 8 units.

applying formula, let time taken is 'D' days.

$$\frac{(10+12+8)\times 10_{days}}{10_{hectare}}$$

$$= \left[\frac{(6_{men}\times 5)+(4_{women}\times 4)+(7_{children}\times 2)\times D}{16_{hectare}}\right]$$

$$\frac{(30)\times 10}{10} = \frac{[60]\times D}{16}$$

D = 8 days

107. (d) (Applying formula) let work done by 'n' men and Women.

$$\frac{P_{men}\times P_{hours}\times P_{days}}{P_{units}} = \frac{n_{men}\times n_{hours}\times n_{days}}{'W'units}$$

$$P^2 = \frac{n^3}{w} = W = \frac{\mathbf{n^3}}{\mathbf{p^2}}$$

108. (d) $\frac{2_{\text{person}}\times 2_{\text{days}}}{2\text{jobs}} = \frac{100\times D}{100 jobs}$

(D is no. of days required)

After solving

D = 2 days

109. (c) Let 'n' more number of man are required to complete the job in 20 days.

$$\frac{80_{days}\times 280_{worker}}{3.5\text{ km}} = \frac{(280+n)_{worker}\times 20_{days}}{1.5\text{ km}}$$

After solving:

480 = 280 + n

n = 200

110. (c) $\frac{7_{men} \times 12_{days}}{1_{work}} = \frac{(7+n)_{men} \times 8_{days}}{2_{work}}$

(n is additional no. of men required)

21 = 7 + n

n = 14 men

111.(a) A : B

time 3 : 4

eff. 1 : 2

We have to do time equal so,

A : B

time $3_{\times 4}$: $4_{\times 3}$

eff. $1_{\times 4}$: $2_{\times 3}$

A : B

time 12 : 12

eff. 4 : 6

Both do the work in 18 days

So,

total work = (A + B)'s eff. × 18

= (4 + 6) × 18 = 180 units.

B will complete the work in

$= \frac{180}{6}$ = 30 days

Alternate

A takes $\frac{3}{4}$th time of B

$A = B \times \frac{3}{4}$

$\frac{A}{B} = \frac{3}{4}$[time]

A does half as much work as B.

$\frac{A}{B} = \frac{1}{2}$[work]

We know,

$\frac{m_1 h_1 d_1}{w_1} = \frac{m_2 h_2 d_2}{w_2}$

$\frac{A \times 3}{1} = \frac{B \times 4}{2}$

$\frac{A}{B} = \frac{2 \rightarrow \text{Efficiency of A}}{3 \rightarrow \text{Efficiency of B}}$

(A+B)'s one day work = (3+2) = 5 units

Total work = 5×18 = 90 units

Time taken by B = $\frac{\text{Total Work}}{\text{Eff. of B}}$

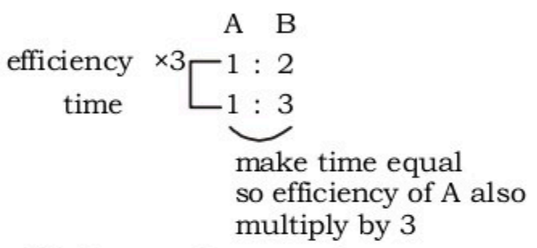
$= \frac{90}{3}$ = 30 days

112.(b) A : B

Time 1 : 3 (Description same as Q no.137)

work 1 : 2

now make equal time



efficiency 3 : 2

Time 3 : 3

(Description same as Q.No:135)

Total work = $10_{days} \times 5$

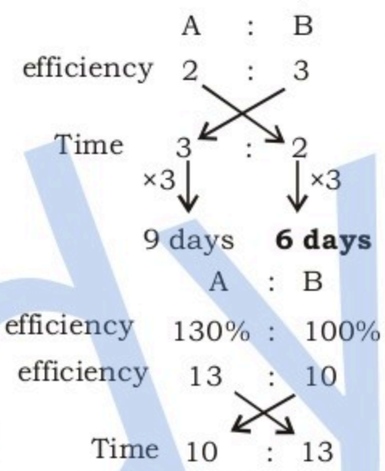
= 50 units

B alone completes whole work in $= \frac{50}{2}$ = 25 days

113.(c) A : B

efficiency 100% : 150%

(Given in Qs)



114.(b) A : B

efficiency 130% : 100%

efficiency 13 : 10

Time 10 : 13

Total work = A's time × efficiency of A

(A+B) will complete the work in

$= \frac{\text{Total work}}{\text{eff. of (A + B)}} = \frac{13 \times 23}{10+13}$ = 13 days

115.(c) $X_{men} \times 30_{days} = (X + 6)_{men} \times (30 - 10)_{days}$

X×30 = (X + 6)× 20

3X = 2X + 12

X = 12 men

116.(a) Let Anu works for 'T' hrs to finish in 12 days.

$18_{days} \times 8_{hrs} = 12_{days} \times T_{hrs}$

T = 12hrs

117.(d) Put values in formula

$\frac{(x-1)_{men} \times (x+1)_{days}}{9_{work}} = \frac{(x+2)_{men} \times (x-1)_{days}}{10_{work}}$

$\frac{x+1}{9} = \frac{x+2}{10}$

10x +10 = 9x + 18

x = 8

118.(c) A : B

efficiency → 100% : 140%

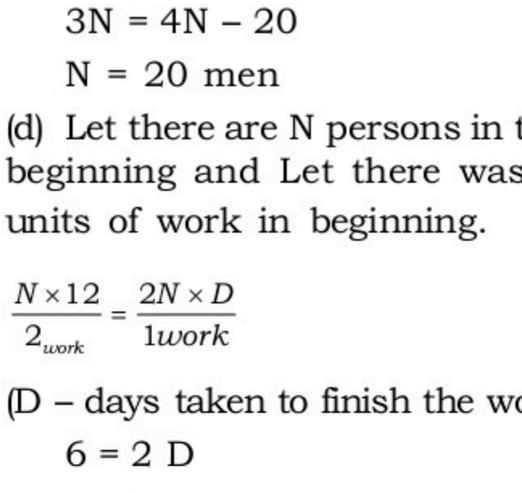
5 : 7

Time 7 : 5

×10 ×10

Actual time 70 days **50 days**

119.(d) According to question,



Time taken by A and B together to complete the task:

$= \frac{60}{13}$ days

120.(b) Let there were N carpenters in the beginning

According to questions,

$\frac{N_{men} \times 9_{days}}{1work} = \frac{(N-5)_{men} \times 12_{days}}{1work}$

3N = 4N – 20

N = 20 men

121.(d) Let there are N persons in the beginning and Let there was 2 units of work in beginning.

$\frac{N \times 12}{2_{work}} = \frac{2N \times D}{1work}$

(D – days taken to finish the work

6 = 2 D

3 = D

122.(c) Let 'H' hours taken to finish the job

$80_{persons} \times 16_{days} \times 6_{hours} = 64_{persons} \times 15_{days} \times H_{hours}$

after solving,

H = 8 hours

123.(b) 3 men × 6 days = (3 men × 2 days) + [(3 +3)men × D days)]

18 – 6 = 6 × D

$\frac{12}{6}$ = D

D = 2 days

124. (b) According to question,

4 men = 6 women

2 men = 3 women

10 men + 3 women = 10 men + 2 men

10 men + 3 women = 12 men ..(i)

$$\frac{4_{men} \times 12_{days} \times 7_{hours}}{1_{work}}$$

$$= \frac{12_{men} \times D_{days} \times 8_{hours}}{2_{work}}$$

After solving we get

D = 7 days

125. (c) According to question,

$x_{men} \times x_{days} = y_{men} \times D_{days}$

$$\mathbf{D = \frac{x^2}{y}}$$

126. (d) 'n' no. of men can be withdrawn

$$\frac{(110_{men} \times 48_{days})}{\frac{3}{5} work} = \frac{(110-n)44}{\frac{2}{5} work}$$

110 × 16 = (110 – n)22

160 = (110 – n)2

n = 30

127. (b) Let 'n' number of men are required.

$$\frac{200_{men} \times 50_{days}}{\frac{1}{4}} = \frac{(200+n)men \times 100days}{\frac{3}{4}}$$

3× 100 = 200 + n

n = 100

128. (b) Let 'n' no. of men he discharged

$$\frac{120_{men} \times 64_{days}}{\frac{2}{3} work} = \frac{(120-n)_{men} \times 60}{\frac{1}{3} work}$$

64 = 120 – n

n = 56 men

129. (a) 2 men can do a work in 'x' days

1 man can do a work in = (2 × x) days

y women can do a work in 3 days

1 woman can do a work in 3y days

	1 man	:	1 woman
days	2x	:	3y
eff.	3y	:	2x

Alternate

2M × x = yW × 3

$$\frac{M}{W} = \frac{3y}{2x} \Rightarrow M : W = 3y : 2x$$

130. (b) Let worker work in 'n' hours

farmer worker

$6_{hr} \times 18_{days} = 12_{days} \times 'n'_{hrs}$

$$6 \times \frac{18}{12} = n$$

n = 9hrs

131. (b) Let 'H' no. of hours taken

$$\frac{15_{men} \times 20_{days} \times 8_{hours}}{1_{work}} = \frac{20_{men} \times 12_{days} \times H_{hours}}{1_{work}}$$

H = 10 hours

132. (d) let 'N' no. of men are needed to complete the whole task

$$\frac{N_{men} \times 5_{days}}{\frac{3}{3} work} = \frac{15_{men} \times 7_{days}}{\frac{1}{3} work}$$

N = 63 men

133. (b) According to the question,

$$\Rightarrow \frac{12 \times 6 \times 240}{460} = \frac{18 \times 360 \times 8}{x}$$

$$\Rightarrow x = \frac{18 \times 360 \times 8 \times 460}{12 \times 6 \times 240} = 1380$$

134. (d) $\frac{90men \times 16days \times 12hours}{1\ work}$

$$= \frac{70men \times 24days \times 8hours}{W\ work}$$

$$90 \times 16 \times 12 = \frac{70 \times 24 \times 8}{W}$$

$$9W = 7, \quad W = \frac{7}{9} \text{ Ans.}$$

135. (a) $\frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2} = \frac{200 \times 50}{1/4} = \frac{M_2 \times 100}{3/4}$

$M_2 = 300$

So additional men

= 300 – 200 = 100

136. (c) According to the question,

$$\frac{20 \times 10}{100} = \frac{10 \times x}{50}$$

x = 10 days

137. (a) From $\frac{m_1 \times d_1 \times t_1}{w_1} = \frac{m_2 \times d_2 \times t_2}{w_2}$

Let extra workers be x

$$\Rightarrow \frac{20 \times 12}{5/8} = \frac{(20+x) \times 4}{3/8}$$

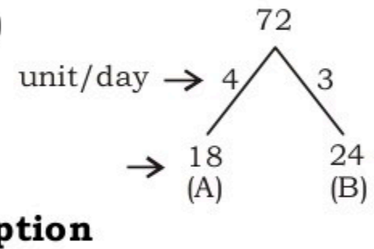
$$\Rightarrow 4 \times 12 = \frac{(20+x) \times 4}{3}$$

$$\Rightarrow 36 = 20 + x$$

$$\Rightarrow x = 16$$

$$\Rightarrow \text{extra workers} = 16$$

138. (b)



Description

- Again, we will take T.W as L.C.M. of no. of days taken by A and B and we will calculate unit/day work by A and B

  If A and B worked for 8 days so they will complete

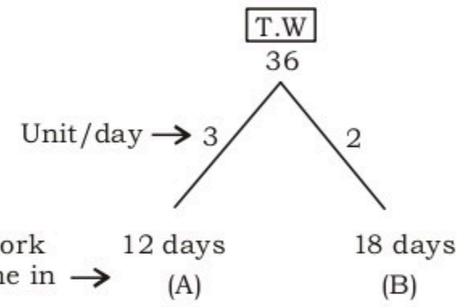
(4 + 3) × 8 = 7 × 8 = 56 units of work

work left = T.W – work completed ⇒ 72 – 56 = 16 units

Now 16 units will be done by B (3 units/day)

$$= \frac{16}{3} = 5\frac{1}{3} \text{ days}$$

139. (d)



work done by A and B in 2 days

(3 + 2) × 2 = 5 units/day × 2

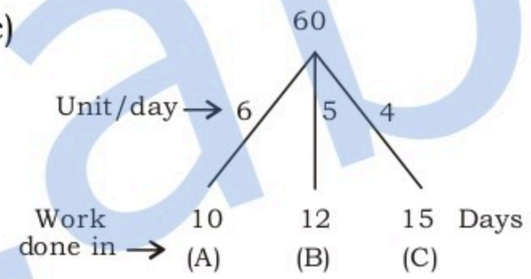
= 10 units

work left : 36 – 10 = 26 units

and it will be complete by 'B' alone

$$\frac{\text{work left}}{\text{B's efficiency}} = \frac{26}{2} = 13 \text{ days}$$

140. (c)



- In these type of questions where a person left few days before the completion of work, in that case calculate the units of work he would have done if he had not left the work and add these units in total work and divide by their total work per day.

  Here A left 5 days before, it means. A would have done 30 units and B left 2 days after 'A' it means he left 3 days before completion.

  3 days × 5 unit/day = 15 unit

  So,

  total work they would have completed if all of them had worked till end.

  Then, total work = 60 + 30 + 15

  = 105 units

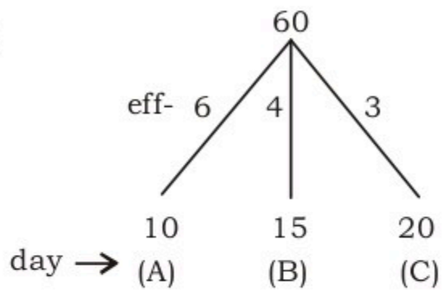
  and their one day work = 6 + 5 + 4

  = 15 units/day

$$\text{work finished in} = \frac{105 units}{15 units/day}$$

= 7 days

141. (d)



A and C work for two days

They completed

(6 + 3) × 2 days = 18 units

work left : 60 – 18 = 42 units

Now A replaces by B

(B + C) one day work = 4 + 3

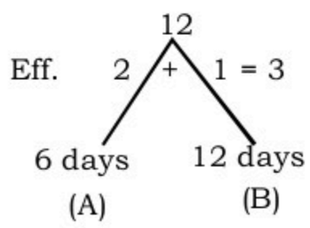
(B + C) complete remaining work in

remaining work

$= \frac{\text{Remaining work}}{\text{efficiency}} = \frac{42}{7}$ = 6 days

Total days 6 + 2 = 8 days

142. (c)



3 days work of A and B is

3 × 3 = 9 units

work left = 12 – 9 = 3 units

B finishes in $\frac{3}{1}$ = 3 days

total no. of days ⇒ 3 + 3 = 6 days

143. (b) According to question,

A + B complete work in 30 days

Take L.C.M of (A+B)'s time to calculate the total work

Assume total work 30 units

Hence,

(A + B)'s work/day = 1 unit/day

(A + B)'s 20 day's work

= 20 × 1 unit/day

= 20 units

Rest work = 30 – 20 = 10 units

Now,

Rest work done by A in 20 days

Then one day's work of A

$= \frac{10}{20} = \frac{1}{2}$

Total work done by A in

$= \frac{30}{\frac{1}{2}}$ = 60 days

Alternate

(A + B) × 10 = A × 20

$\frac{A+B}{A} = \frac{2}{1}$

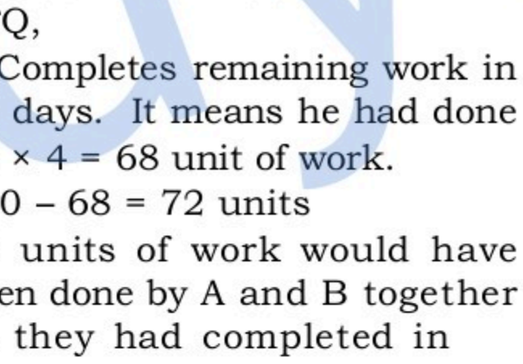
Total units of work = (A+B)×30

= 2 × 30 = 60

A's efficiency = 1

Total time = $\frac{60}{1}$ = 60 days

144. (c)



B and C start the work, in 3 days they will do

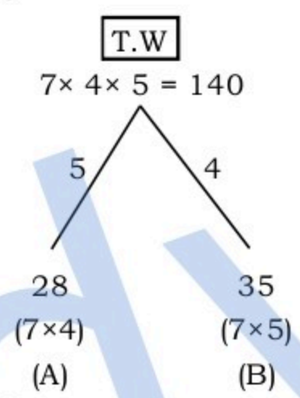
(8 + 6) unit/day × 3 days = 42 units

work left = 72 – 42 = 30

A will do in

= $\frac{30}{3}$ = 10 days

145. (c)



ATQ,

B Completes remaining work in 17 days. It means he had done 17 × 4 = 68 unit of work.

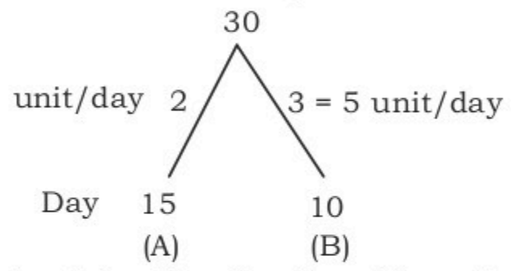
140 – 68 = 72 units

72 units of work would have been done by A and B together so they had completed in

$\frac{72}{5+4}$ = 8 days

A leaves after 8 days

146. (c)



work of A + B = 5 × 2 = 10 units

work left 30 – 10 = 20 units

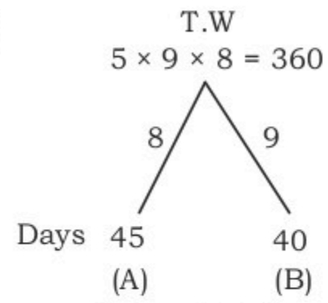
A will complete this work in $\frac{20}{2}$

= 10 days

Total time 10 days + 2 days

= 12 days

147. (b)



B complete total work in 23 days → 23 × 9

work done by A + B

= 360 – 207 = 153

They did it in $\frac{153}{(9+8)}$ = 9 days

A left after 9 days

148. (d) According to question,

1M + 1B complete the work in 24 days. Last 6 days boy alone does work. They worked together for 22 days (Because the whole work complete in days).

Assume total work = 24 units.

(1M + 1B) per day work = 1 unit

1M + 1B do the work in 22 days = 22 units work

Rest work = 24 – 22 units = 2 units.

Rest work done by Boy in 6 days

Hence,

per day work of boy = $\frac{2}{6} = \frac{1}{3}$ unit per day

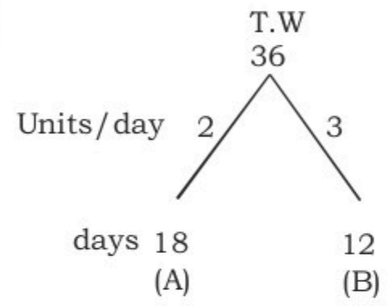
Man per day work = $1 - \frac{1}{3} = \frac{2}{3}$

man alone can do the work in

$= \frac{\text{Total work}}{\text{eff. of man}}$

$= \frac{24}{2} \times 3$ = 36 days

149. (d)



Description : see solution of Ques. no. 169)

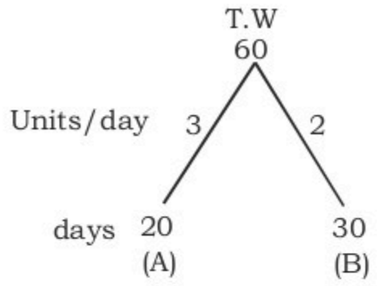
36 + (3 × 3) = 45(T.W)

A + B one day work = 5 units/days

(A + B) will do whole work in

$\frac{45}{5}$ = 9 days

150. (a)



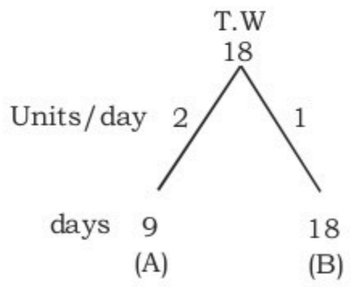
A's 10 days work = 10 × 3 units/ days = 30 units

So,(60 – 30) = 30 units of work would have been done by A and B both and it took time:

$$\frac{30}{(3+2)} = 6 \text{ days}$$

So,B worked for 6 days

151. (b)



See Exp. Ques. No. 169

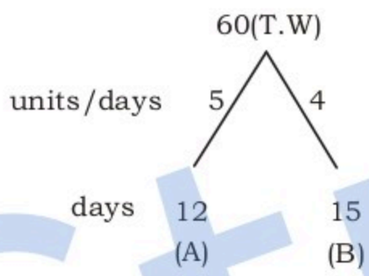
Add 3 days work of A which is

3 × 2 = 6units T.W. = 6 + 18 = 24

(A + B)'s one day work is 3 units

They will complete in $\frac{24}{3}$ = 8 days

152. (c)



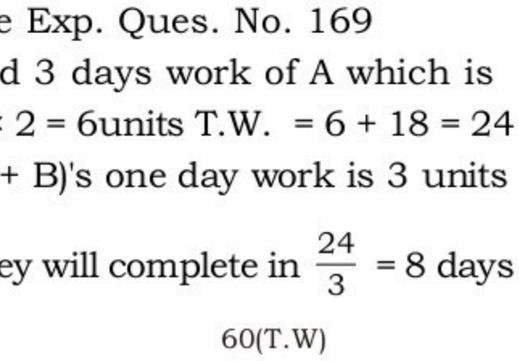
Total work done by A and B in 4 days is

(5 + 4)× 4 = 36 units

Total work left = 60 – 36 = 24 units and B will complete this

in = $\frac{24}{4}$ = 6 days

153. (c)



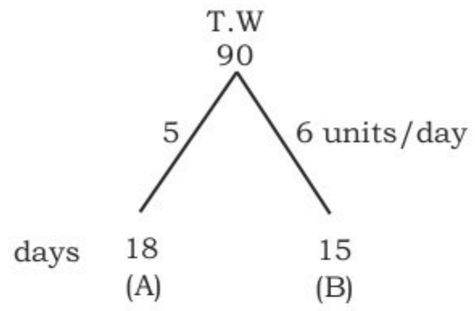
(B + C) 2 days work = (9 + 6)×2 = 30 units

work left = 180 – 30 = 150 units

A alone completes the remaining

work in = $\frac{150}{10}$ = 15 days

154. (c)

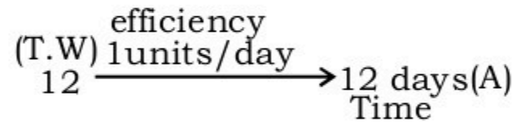


B's 10 days' work = 6 × 10 = 60 units

work left = 90 – 60 = 30 units

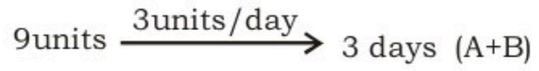
A does 30 units in = $\frac{30}{5}$ = 6 days

155. (a)



After 3 days A finishes 3 units.

work left = 12 – 3 = 9 units



(A+B)'s one day work = 3 units

A's one day work = 1 unit

B's one day work = 3 – 1 = 2 units

B completes whole work in

= $\frac{T.W}{efficiency} \Rightarrow \frac{12}{2}$ = 6 days

156. (c)According to question,

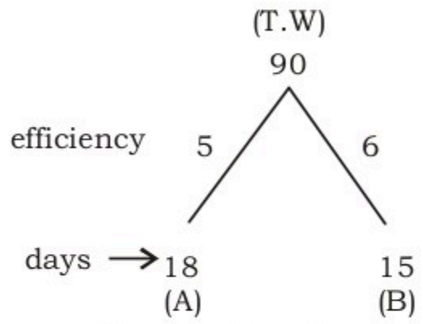
Let the remaining work is completed in 'D' days

$45_{men} \times 16_{days} = (45_{men} \times 4_{days}) + (45 + 36)_{men} \times D$

$\frac{540}{81} = D$

$D = 6\frac{2}{3}$ days

157. (a)



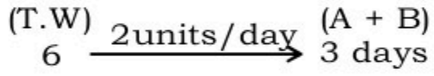
B's one day work = 6 units

B's 10 days work = 6 × 10 = 60 units

work left = 90 – 60 = 30 units

A does = $\frac{30}{5}$ = 6 days

158. (c)



2 days work of A + B = 2 × 2

= 4 units

work left = 6 – 4 = 2 units

A completes the rest work in 2 days

So,

A's efficiency = 1 unit/day

So, B's efficiency is 2 –1

= 1 unit/day

B will complete the work in

$\frac{6}{1}$ = 6 days

Alternate

one day work of (A+B) = 2 days work of A

(A+B) × 1 = A × 2

$\frac{A+B}{A} = \frac{2}{1}$

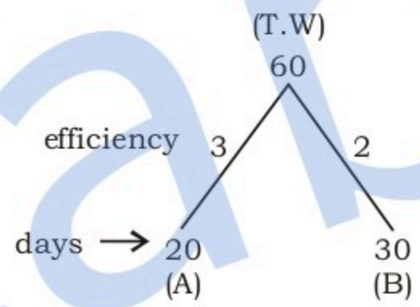
A + B = 2 ⇒ B = 1

If A + B work together so, their efficiency = 2 units

then total work = Efficiency × time of A + B = 2 × 3 = 6 units

B alone do the work = $\frac{6}{1}$ = 6 days

159. (c)



(A + B)'s 7 days work is :

(3 + 2) × 7 = 35 units

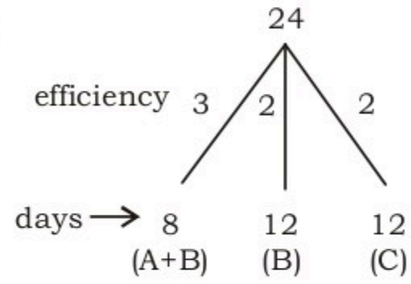
work left : 60 – 35 = 25 units

If C does 25 units of work in 10 days. It means C does 2.5 units/day

C complete the whole work in

$\frac{\text{T.W}}{\text{efficiency of C}} = \frac{60}{2.5}$ = 24 days

160. (d)



A and B work for 4 days they completed

3 × 4 = 12 units

work left = 24 – 12 = 12 units

B's 2 days work = 2 × 2 = 4 units

work left = 12 – 4 = 8 units

Now C's complete the work in

$\frac{8}{2}$ = 4 days

161. (a)

(T.W)
60
2units/day ↓
30 days
(A + B)

(A+ B) worked for 20 days so, they completed 20 × 2 = 40 units

Work left : 60 – 40 = 20 units

(T.W)
20
1units/day ↓
20 days
(A)

A's efficiency 1 units/day

A will complete the whole work in

$\frac{T.W}{efficiency} = \frac{60}{1}$ = 60 days

Alternate

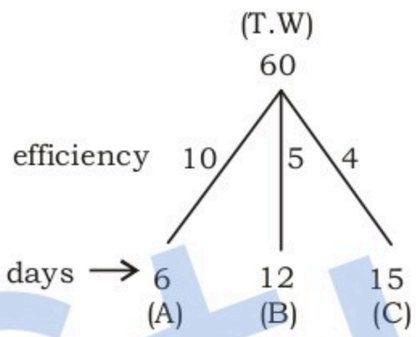
(A + B)× 10 = A × 20

$\frac{A+B}{A} = \frac{2}{1}$

T.W = 2 × 30 = 60 units

Time taken by A alone = $\frac{60}{1}$ = 60 days

162. (c)



$\frac{1}{8}$ of work = $\frac{60}{8} = \frac{15}{2}$ units

rest work = $60 - \frac{15}{2} = \frac{105}{2}$ units

rest work completed by A + B

$= \frac{\text{rest work}}{(A+B)\text{'s eff.}}$

$= \frac{105}{2\times15} = \frac{7}{2} = 3\frac{1}{2}$ days

163. (b) 16 women × 12 = 12 men × 8

2 women = 1 man

Total work = 12 men × 8 days

= 96 units

16 men do work in 3 days

= 16 × 3 = 48 units

work left 96 – 48 = 48 units

16 men – 10 men left = 6 men + 4 women join

6 men + 2 men = 8 men

8 men will do 48 units in

$\frac{48}{8}$ = 6 days

164. (b) Let 'D' days required to complete the remaining work

$40_{men} \times 18_{days} = (40_{men} \times 8_{days}) + (50_{men} \times D)$

720 – 320 = 50D

D = 8

165. (a) 20 men → 18 days

⇒ Work done by 20 men working

Together = 1 work

⇒ Work done by them in 3 days working

Together = 1×3=3 work

⇒ Remaining work = 18 – 3

= 15 work

⇒ 15 work is to be done by (20+5)=25 men

∴ Efficiency of 20 men = 1

Efficiency of 1 man = 1/20

⇒ Efficiency of 5 men $= \frac{5}{20} = \frac{1}{4}$

⇒ So, efficiency of (20+5)

⇒ 25 men $= 1 + \frac{1}{4} = \frac{5}{4}$ working days

Required time = $\frac{\text{Work}}{\text{Efficiency}} = \frac{15}{5/4} = 12$ days

Therefore, 12 more days will be taken to finish the remaining work

Alternate

20 men can do 18 days

so total work = 18×20 = 360

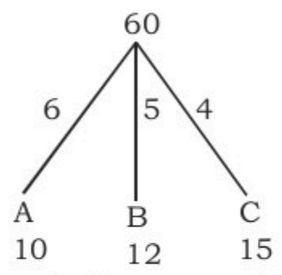
20 men 3 days work = 20 × 3 = 60

remaining work = 360 – 60 = 300

After joining 5 men total men = 20 + 5

so $\frac{300}{25} = 12$days

166. (d)



Description- see in the solution no. 169

A leaves before 5 days = 6×5 = 30

B leaves before 3 days = 3×5 = 15

then total work = 60+30+15

=105

total efficiency 6+5+4 = 15

total days = $\frac{105}{15}$ = 7 days

167. (a) Let total work = 40 units

(T.W) 40 —1units/day→ 40 days (X)

X's 1 day work = 1 unit

X's 8 days work is 8 ×1 = 8 units.

Work left = 40 – 8 = 32 work

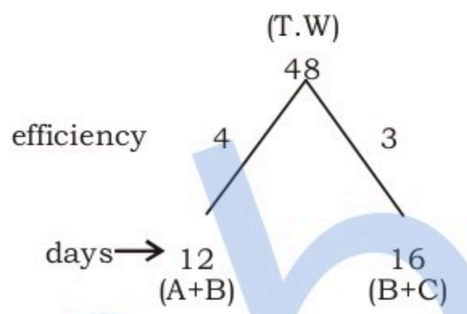
= left 32 —2units/day→ 16 days (Y)

Y's one day work = 2 units

X's one day work = 1 unit

(X + Y) complete the whole work together in = $\frac{40}{2+1} = 13\frac{1}{3}$ days

168. (a)



According to questions,

A worked for 5 days and

B worked for 7 days

If A and B work together for 5 days they would complete 4 × 5 = 20 units

remaining work = 48 – 20

= 28 units

Now B has to work for 2 more days and if he does it along with C for 2 days. Then, both would complete (3 × 2) = 6 units of work.

work left = 28 – 6 = 22 units

Now C completes in 13 – 2 = 11 days

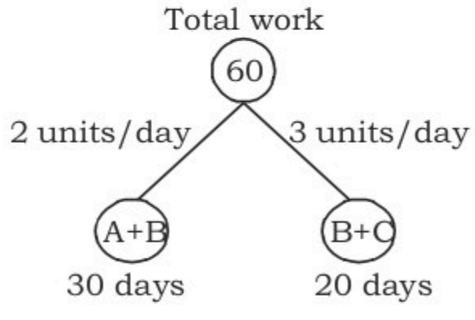
So, C works $\frac{22}{11}$ = 2 units/day (efficiency) and B + C does 3 units/day (efficiency)

So B does 1 unit/day

B will complete the whole work in

$\frac{48}{1}$ = 48 days

169. (d)



According to the question,

⇒ A + B ..... 30 days

⇒ B + C ..... 20 days

⇒ A 5

⇒ B ..... 5 + 10

⇒ C ..... 10 + 8 days

⇒ Work done by (A+B) in 5 days

= 2×5 = 10 units

⇒ Work done by (B+C) in 5 days

= 10×3 = 30 work

⇒ Total work (finished till now).....40 units

⇒ Remaining work = 60 – 40 = 20 units

⇒ Here we find that C does remaining 20 units in 8 days

⇒ C's efficiency $= \frac{\text{Work}}{\text{Day}}$

$= \frac{20\ \text{Work}}{8\ \text{Days}} = \frac{5}{2}$

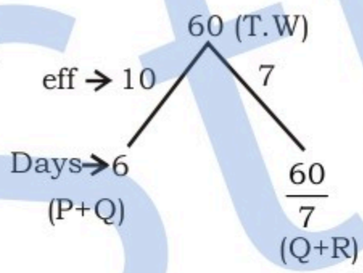
⇒ C's efficiency

$= \frac{5}{2}$ unit/day

⇒ Therefore, time taken by C alone to complete the work

$= \frac{60}{5} \times 2 = 24$ days

170. (a)



(Q + R) 6 days work = 7 × 6

= 42 Units

then in 3 days = total work = 18

∴ P Completes = 60 – 42 = 18 units

P' s eff. $\frac{18}{3}$ = 6 units/day

Q's eff = 10 – 6 = 4 units/day

R's eff = 7 – 4 = 3 units/day

P completes whole work in

$= \frac{60}{6}$ = 10 days

R completes whole work in

$= \frac{60}{3}$ = 20 days

diff. is 20 – 10 = 10 days Ans.

171. (d) Shortest method of doing this question is:

put in $\frac{M_1 \times T_1 \times D_1}{W_1} = \frac{M_2 \times T_2 \times D_2}{W_2}$

formula

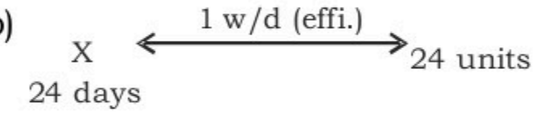
So,

Let no. of 'burners → 'B'

$\frac{6b \times 6hr \times 8day}{450} = \frac{B \times 10 \times 5}{625}$

After solving → B = 8

172. (b)



According to the question,

X → 24 days

⇒ work done by X in 4 days alone = 4 × 1 = 4 units

⇒ Remaining work

= 24 – 4 = 20 units

⇒ 20 units done by both together in (16 – 4 days)

= 12 days

⇒ Then efficiencies of (X + Y)

$= \frac{work}{days} = \frac{20}{12}$

$= \frac{5}{3} = 1 + \frac{2}{3}$

⇒ efficiency of Y = $\frac{2}{3}$

⇒ Time taken by Y alone to complete the total work = $\frac{24}{2/3}$

= 36 days

Alternate

x × 20 = (x+y) × 12

$\frac{x}{x+y} = \frac{12}{20} = \frac{3 \rightarrow \text{Efficiency of x}}{5 \rightarrow \text{Efficiency of } (x+y)}$

Efficiency of y = 5 – 3 = 2 units/day

Total work = 24 × 3 = 72 units

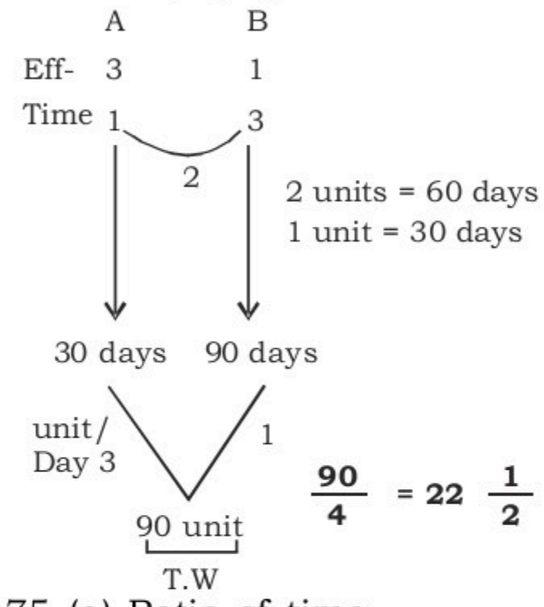
Total time taken by 'y' = $\frac{72}{2}$

= 36 days

173. (d) Since we know efficiency and time are inversely proportion to each other.

	P	:	Q
efficiency	3	:	4
time	4	:	3

174. (b) Efficiency is always inversely proportion to time



$\frac{90}{4}$ = 22 $\frac{1}{2}$ days

175. (a) Ratio of time

A : B
3 : 2 $\left[\frac{A}{B} = \frac{150\%}{100\%} = \frac{3}{2}\right]$

efficiency of work = 2 : 3 (Time and efficiency inversely proportional to each other)

Total work = $18_{days} \times (2 + 3)$ unit

= 90 units

B completes the work in

$= \frac{90\ \text{units}}{3\ \text{units/day}}$ = 30 days

176. (b) If their daily wages are in ratio

5 : 6 : 4. (A : B : C)

So wages of A for 6 days

= 6 × 5 = 30

So wages of B for 4 days

= 4 × 6 = 24

So wages of C for 9 days

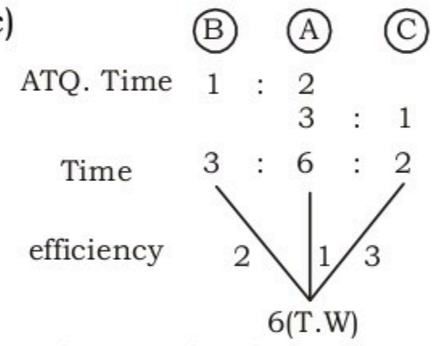
= 9 × 4 = 36

	A	:	B	:	C	total
⇒	30	:	24	:	36	↓
⇒	5	:	4	:	6	= 15

Amount received by A

$= \frac{5}{15} \times 1800 = ₹\ 600$

177. (c)



one day work of A + B + C = 6 units

So, A completes whole work in

$\frac{T.W}{efficiency} = \frac{6}{1}$ = 6 days

178.(b)

	A	:	B
efficiency	(100 +150)%	:	100%
	250	:	100
efficiency	5	:	2

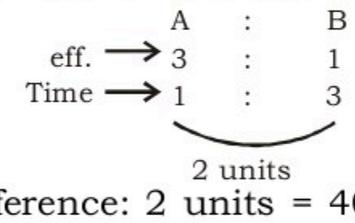
= (5 + 2) = 7 units/day

Total work = $15_{days} \times 7_{units} = 105$

A can complete the whole work in

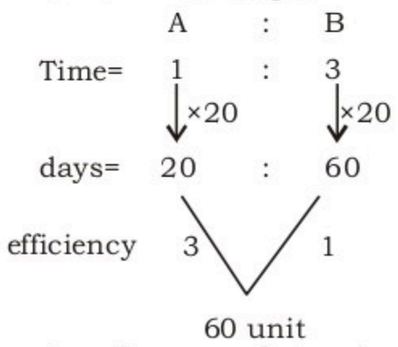
$= \frac{105}{5} = 21$ days

179. (d) According to question,



difference: 2 units = 40 days

1 unit = 20 days



= A + B completes in :

$\frac{T.W}{eff.} = \frac{60}{(3+1)} = 15$ days

180. (c) According to question,

Efficiency A : B

2 : 1

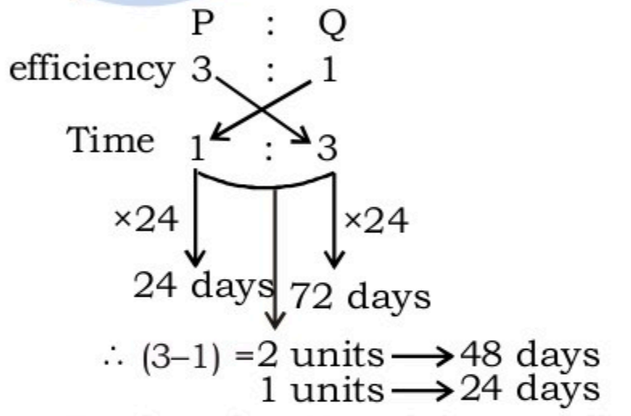
If B does 1 unit of work A will do 2 units of work. So in a day, they will complete 3 units of work together.

Total work = 12days × 3 units/day = 36 units

B can complete the whole work alone in

$\Rightarrow \frac{36}{1} = 36$ days

181. (a)

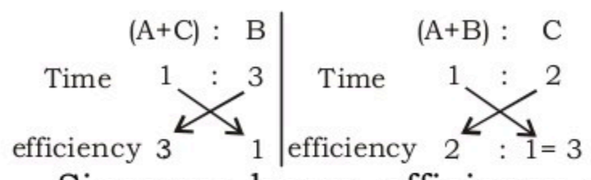


Total work = No. of days × efficiency = 72 × 1 = 72

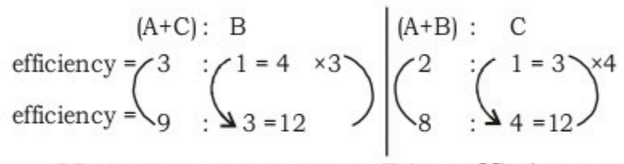
One day work of P and Q is (3 + 1) = 4 units.

(P + Q) will complete the work in $= \frac{72}{4} = 18$ days

182. (b) According to question,



Since we know, efficiency of persons will remain same. so we will balance it.



Now we can see, B's efficiency is 3 units and C's is 4 units and total is 12 units.

So A's efficiency is 12 – 4 – 3. = 5 units

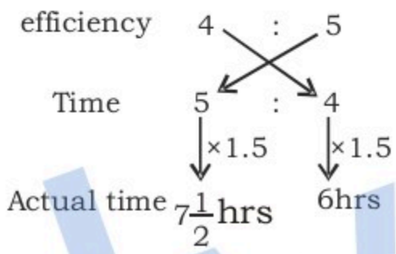
Total work = $10_{days} \times 12_{units}$

A can complete separately in

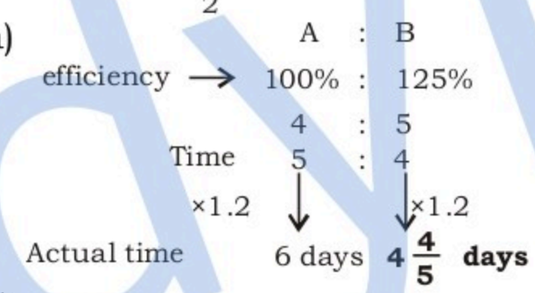
$\frac{T.w}{\text{efficiency of A}} = \frac{120}{5} = 24$ days

183. (b)

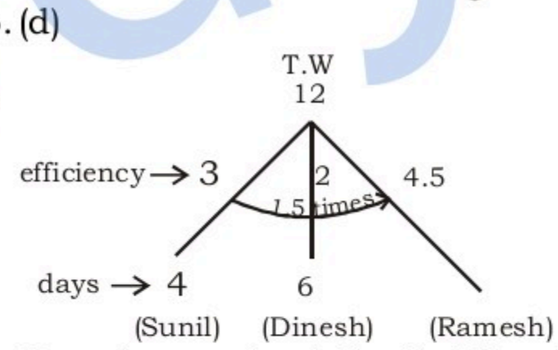
	A	:	B
efficiency	(100–20)%	:	100%
	80%	:	100%



184. (a)



185. (d)



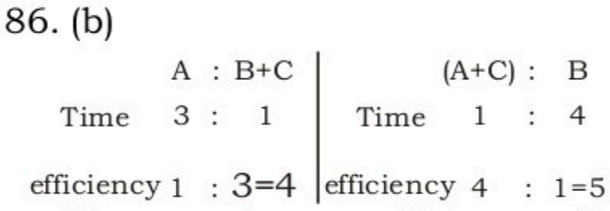
One day work of Sunil, Dinesh and Ramesh is

$3 + 2 + \frac{9}{2} = \frac{19}{2}$ units/day

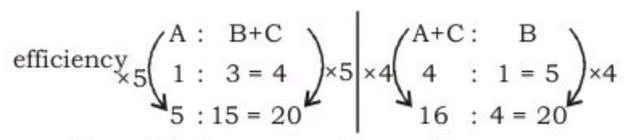
They will complete the work in

$\frac{12}{\frac{19}{2}} = 1\frac{5}{19}$ days

186. (b)



Since we know, efficiency of a persons will remain same. So we will balance it.



A's efficiency : 5 units,

B's efficiency : 4 units

Total efficiency : 20 units

So,

C's efficiency : 20 – 5 – 4 = 11 units

Total work = $24_{days} \times 20_{units/day}$

$\Rightarrow$ 480 units.

A alone will do whole work in

$\frac{480}{5} = 96$ days

187. (a)

	man		Woman		boy
efficiency	4	:	2	:	1

total work = Time × (Efficiency of man + woman + boy)

$\Rightarrow$ 7days × (4 + 2 +1) = 49 units

Boy can do this work in

$= \frac{49}{1} = 49$ days

188. (b) According to the question,

$\Rightarrow$ 2A = 3B

$\Rightarrow \frac{A}{B} = \frac{3}{2}$

$\Rightarrow$ Then efficiency ratio A : B = 3 : 2

$\Rightarrow$ We know that time is inversely proportional to efficiency

$\Rightarrow$ Then time taken by them in ratio

A : B = 2 : 3

2 ×4 → 8day; 3 ×4 → 12day

$\because$ A can do the work in 8 days

$\Rightarrow$ i.e 2 units $\rightarrow$ 8

1 unit $\rightarrow$ 4

$\Rightarrow$ time taken by B $\rightarrow$ 3 units

= 3 × 4

= 12 days

189. (b) A + B + C = 6 days [6 days total work]

According to the question,

Ratio of their efficiencies,

A	:	B	:	C
6	:	3	:	2

Total efficiencies

(6 + 3 + 2) units = 11 units

Total work = 11 × 6

= 66 units

Therefore, time taken by C to complete the work

$= \frac{\text{Total work}}{\text{Efficiencies}} = \frac{66}{2} = 33$ days

190. (d) Rate of regular 1h = $\frac{2000}{50}$

= Rs. 40

Rate of additional hours

= $1\frac{1}{2}\times 40$

= Rs. 60

No. of additional hours

= $\frac{2300-2000}{60}$ = 5 hours

191. (a) According to the question,

$\frac{A}{B}=\frac{1}{2}$ | $\frac{B}{C}=\frac{1}{2}$

A : B : C

1 : 2

1×2 : 2×2

1 : 2 : 4

192. (d) eff. of A = 3 efficiency of B $\begin{pmatrix}A=3\\B=1\end{pmatrix}$

$\frac{2}{5}$th of work by (A+B) = 9 days

Total work (A + B) = $\frac{45}{2}$ days will be completed

Total work = days × efficiency (A + B)

= $\frac{45}{2}\times 4 = 90$

No. of days for B

= $\frac{\text{Total work}}{\text{efficiency}}=\frac{90}{1}$ days

193. (b) 500 workers → average wages is 200

Total wages

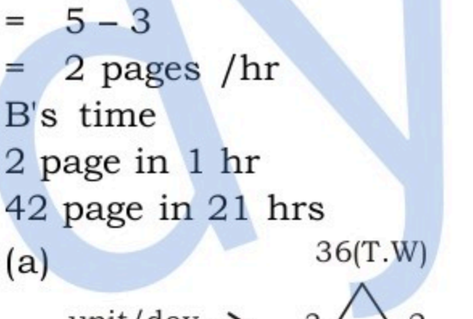
= 200 × 500 = 100000

correct read 80 + 220 = 300 misread 180 + 20 = 200

+ ₹100 is difference between correct wages and misread wages so we will add this in 1,00,000 and then divided by 500 then we find average wages

= $\frac{1,00,100}{500}$ = 200.20

194. (c) First line clearly states that efficiency of A should be equal to combined efficiency of B and C.(A take same time as B and C together)



Total Efficiency = 6

efficiency of C = 1 unit/day

efficiency of A + B = 5 unit/day

So,what should be efficiency of B so that A's efficiency becomes equal to B and C's efficiency.

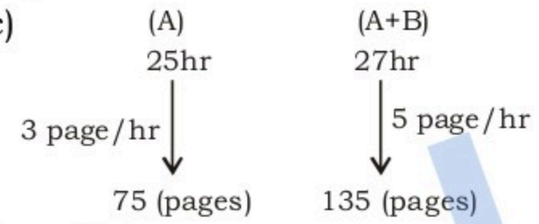
A + B & C

↓ ↓ ↓

3 + 2 & 1 → So, $\frac{\text{T.W}}{\text{B's efficiency}}$

= $\frac{50}{2}$ = 25 days

195. (c)



B's efficiency

= (A + B)'s efficiency – A's efficiency

= 5 – 3

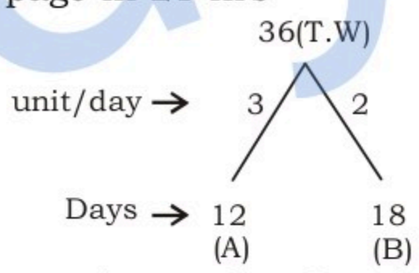
= 2 pages /hr

B's time

2 page in 1 hr

42 page in 21 hrs

196. (a)



A's one day work = 3 units

B;s one day work = 2 units

A starts the work and does 3 units and B does the work 2 units/day They both do 5 units of work in 2 days. They both do 35 units of work in 14 days

(divide $\frac{36}{5}$, take it to the closest)

work left ⇒ 36 – 35 = 1 unit,

Now, A's turn.

Acompletes ⇒ $\frac{1\text{ unit}}{3\text{ units/day}}=\frac{1}{3}$ day

whole work completes in

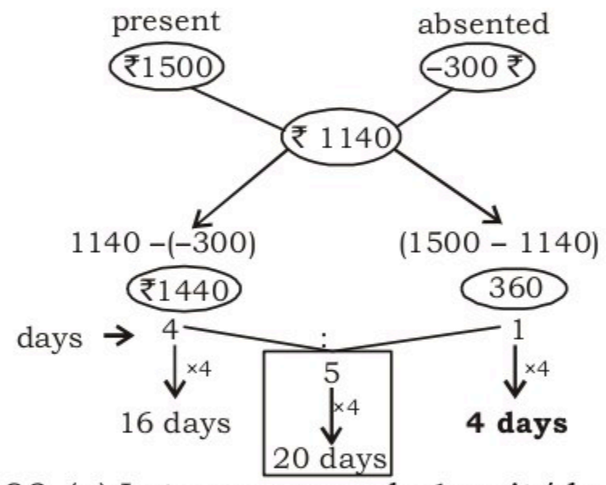
⇒ $14+\frac{1}{3}=14\frac{1}{3}$ days

197. (c) If labourer had come for 20 days he would have earned

₹ = 20 × 75 = 1500

If labourer had absented for 20 days he would have earned fined for

20 × 15 = ₹ 300



198. (a) Let a man can do 1 unit/day.

Total work = $40_{men}\times 40_{days}$ = 1600 units

40 men can do the work in 10 days = 400 units

According to question,

(5men left after 10 days)

35 men can do the work in 10 days = 350 units

30 men can do the work in 10 days = 300

25 men can do the work in 10 days = 250

20 men can do the work in 10 days = 200

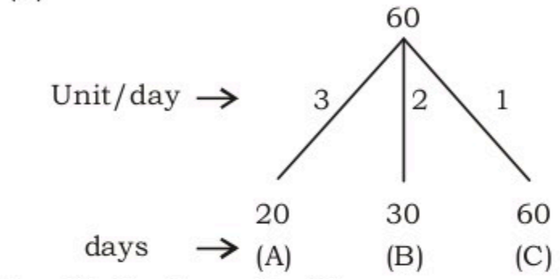
men left 20 – 5 = 15 and work left = 1600 – 1500 = 100 units

they will complete in $\frac{100}{15}$

= $6\frac{2}{3}$ days

Total days = 50 + $6\frac{2}{3}$ = $56\frac{2}{3}$ days

199. (c)



A will do 3 units/days.

(A + B + C) will do 6 units/days

In 3 days cycle total work done is

= 3 + 3 + 6 = 12 units

↓ ↓ ↓

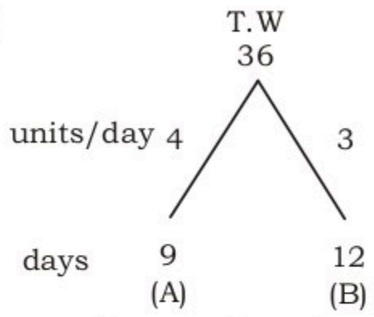
A A A+B+C

work will be completed in = $\frac{60}{12}$ = 5 cycles

1 cycle → 3 days

5 cycle → 3 × 5 = 15 days

200. (c)



A's one day work = 4 units
B's one day work = 3 units
Since they work on alternate day they will do 7 units in 2 days.
This 2 days cycle will continue
Now,

$$\frac{\text{T.W}}{\text{units/cycle}} = \frac{36}{7} = 5 \text{ cycle}$$

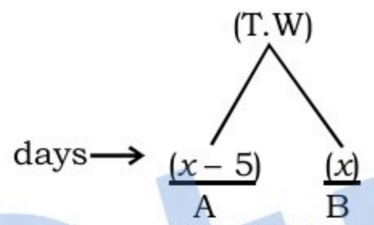
1 cycle $\rightarrow$ 2 days
5 cycle $\rightarrow$ 10 days
Now A's turn. He will do
36 – 35 = 1 units of work and

he will take = $\frac{1}{4}$ days

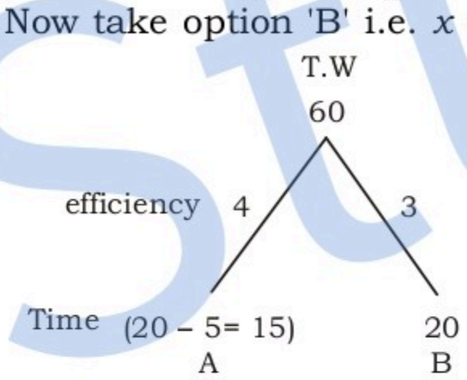
work completed in

$= 10+\frac{1}{4} = 10\frac{1}{4}$ days

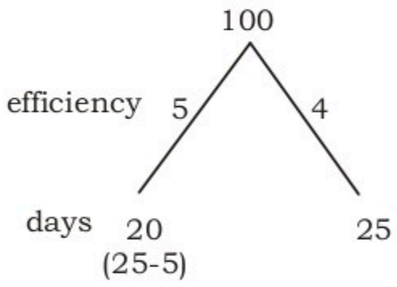
201. (c) Always, try to do these questions with the help of options to save time.



Now take option 'B' i.e. $x = 20$

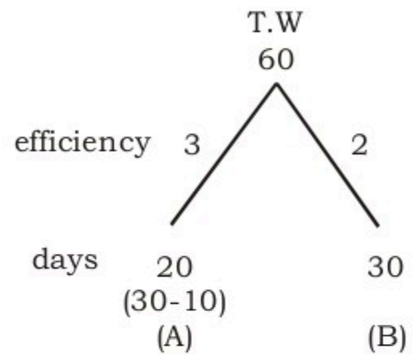


total time = $\frac{60}{(4+3)} = 8\frac{4}{7}$ days
this option not matched with $11\frac{1}{9}$ days
take option 'C' x = 25



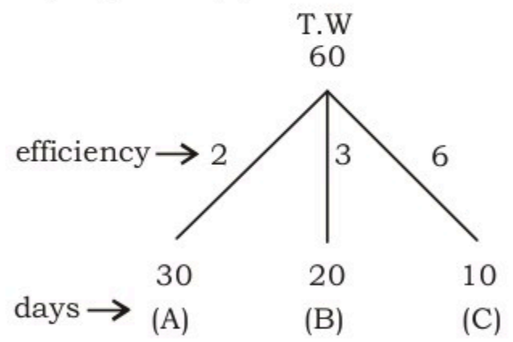
Total time = $\frac{100}{(5+4)} = 11\frac{1}{9}$ days
Hence, option (C) is correct

202. (a) Shortcut : take option (a)



Total time $\Rightarrow \frac{60}{3+2}$ = 12 days
hence, option (a) is correct

203. (a)



cycle
First day A + B works = 2 + 3 = 5 units
IInd day A + C works = 2 + 6 = 8 units
IIIrd day A + B works = 5 units

In one cycle work is completed
= 13 units
It will continue at last, work will finish in

$\frac{60}{13(8+5)}$ = 4 cycle and 8 units of work is left.
Now, A will do with 'B' and they will complete 5 units.
Remaining 3 units will be done by A and C in $\frac{3}{8}$ days

Total time = 4 cycle × 2 = 8 days
(A + B) = 1 days

A + C = $\frac{3}{8}$ days

Hence, total time
= 8 days + (A + B)'s days + (A + C)'s days

$= 8 + 1 + \frac{3}{8} = 9\frac{3}{8}$ days

204. (c) Dinesh's one hr. work

$= \frac{32}{6} = \frac{16}{3}$ pages/hr

Rakesh's one hr. work

$= \frac{40}{5}$ = 8 pages/hr

Dinesh's and Rakesh's one hr. work = $\frac{16}{3}+8 = \frac{40}{3}$ pages /hr

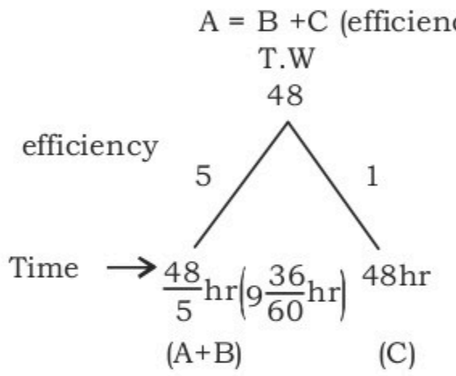
They will finish the work together

$\frac{\text{T.W}}{\text{efficiency}} = \frac{110}{\frac{40}{3}} = 8\frac{1}{4}$

= 8hr.15 min.

205. (b) According to questions,

A = B +C (efficiency)



(A + B + C)'s efficiency
= 6 units/day
According to question,
A should do half of the work alone as another half work is done by B and C together.
So,

A's efficiency1 $= \frac{6}{2}$ = 3 units

B's efficiency = 6 – 3 – 1 = 2 units
B will complete whole work in

$\frac{48}{2}$ = 24 hrs

206. (d) (Let x is total time taken by (A + B + C)

$\frac{A+B+C}{x}$	$\frac{A}{x+6}$	$\frac{B}{x+1}$	$\frac{C}{2x}$

	A + B + C		C
Time	1	:	2
efficiency	2	:	1

(A + B)'s efficiency = 2 – 1 = 1

	A + B	:	C
eff.	1	:	1
days	2x	:	2x

$\frac{A+B}{2x} = \frac{C}{2x}$

(A+B) days
A(x + 6 – 2x) = 6 – x (extra hours)
B(x + 1 – 2x) = 1 – x (extra hours)

$2x = \sqrt{(6-x)(1-x)} = 3x^2 + 7x - 6 = 0$

$x = \frac{2}{3}$

A alone does = $\frac{2}{3}+6 = \frac{20}{3}$ hours, B alone $\frac{2}{3}+1 = \frac{5}{3}$ hrs

A + B can do it in = $\frac{4}{3}$ hours

Alternate:-

Let (A+B+C) can complete the work in x hours.

Time taken by A = (x + 6) hours

B = (x + 1) hours

C = 2x hours

According to the question,

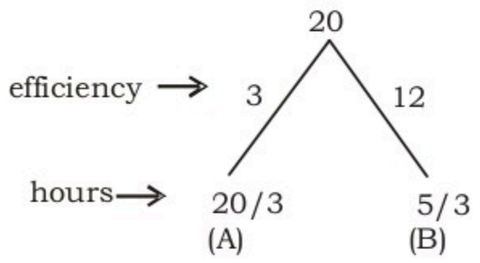
$$\frac{1}{x}=\frac{1}{x+6}+\frac{1}{x+1}+\frac{1}{2x}$$

$$\frac{1}{x}-\frac{1}{2x}=\frac{1}{x+6}+\frac{1}{x+1}$$

x = 2/3 hours

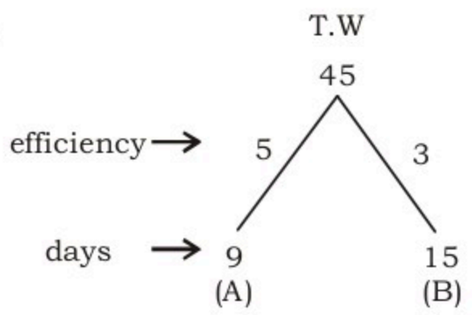
A = 6+2/3 = 20/3 hours

B = 1+2/3 = 5/3 hours



A + B can do it in = $\frac{4}{3}$ hours

207. (b)



(A + B)'s 2 days work 5 + 3 = 8 units

They will do $\frac{40}{8}$ = (5 × 2) = 10 days

work left: 45 – 40 = 5 units

Now A's turn and he will complete in = $\frac{5}{5}$ = 1 days

then total work completed in = 10 + 1 = 11 days

208. (c) Let the required time = T

$$\Rightarrow\frac{m_1\times d_1\times t_1}{w_1}=\frac{m_2\times d_2\times t_2}{w_2}$$

$$\Rightarrow\frac{12\times12}{12}=\frac{4\times\text{time}}{4}$$

⇒ Time = 12 minutes

209. (d) Let a = 8h

b = $4\frac{1}{2}$ h = $\frac{9}{2}$ h

Time required to finish the work together = $\sqrt{ab}$

= $\sqrt{8\times\frac{9}{2}}$ = 6 h

210. (a) R_x = $\frac{80}{20}$ pages/hr

= 4 p/h

$R_{(x+y)}$ = $\frac{135}{27}$ p/h

= 5 p/h

Ry = $R_{(x+y)} - R_x$ = (5 – 4)

= 1 p/h

y can copy 20 pages = $\frac{20p}{1p/h}$

= 20 h

211. (b) (x+ 4)(x+5) = (x – 5)(x + 20)

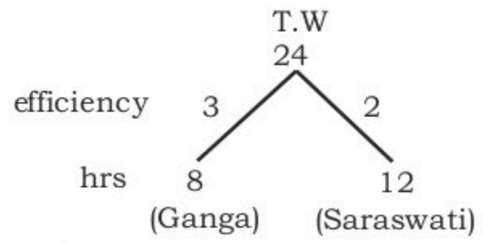
$x^2+5x+4x+20=x^2+20x-5x-100$

9x + 20 = 15x – 100

120 = 6x

x = 20

212. (b)



According to question,

Ganga begins at 9 am and she does 3 units/hours

Saraswati begins at 10 am and she does 2 units/hours

So by 11 am they complete 5 units

time $\Rightarrow\frac{T.W}{(3+2)}$ = $\frac{24}{5}$ = (4 cycle of 2 hrs each) + 4 units left)

and Now Ganga will complete 3 unit out of 4 units in 1 hr

Now,

Rest 1 unit work done by Saraswati in

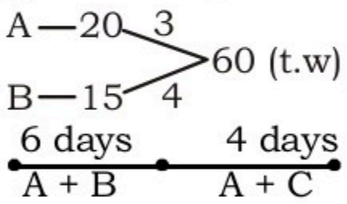
= $\frac{1}{2}$ hr

Total time = 8 + 1 + $\frac{1}{2}$ = $9\frac{1}{2}$ hr

Hence,

work finished at = 9 am + $9\frac{1}{2}$ hr = 6 : 30 PM

213 (b) According to the question.



A+B = 6×7 = 42

A+C = $\frac{18}{4}$ =4.5

1 day's of C work = 4.5 – 3 = 1.5

∴ 'C' finished the work

= $\frac{60}{1.5}$ = 40 days

214. (d) According to the question,

4m + 6w = 8 days . . . . . (i)

or

32m + 48w = 1 days

3m + 7w = 10 days . . . . . (ii)

or

30 m + 70 w = 1 days

∴ 32 m + 48w = 30m + 70w

2m = 22w

m = 11 w

from (i)

4m = 44 w

∴ (44w + 6w)× 8 = 10w × x

50w × 8 = 10w × x

x = 40 days

215. (b)

Days	Eff.	Total work
A – 12	2	24
B – 24	1	
	3	

A and B together can finish the work = $\frac{24}{3}$ = 8 days

216. (a)

Days	Eff.	Total work
A – 11	20	220
B – 20	11	
C – 55	4	
	35	

A, B & C 2 days work = 20 + 20 + 11 + 4 = 55

Required days

= $\frac{220}{55}\times 2$ = 8 days.

217. (d) Amit Bhawana Chandan

Efficiency → $5x$ x $2x$

Let Total work = 1

Efficiency of (A+B+C) = 1

Then $5x+x+2x$ = 1

x = $\frac{1}{8}$

Days taken by Amit = $\frac{1}{5/8} = \frac{8}{5}$

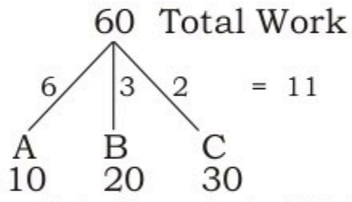
Days taken by chandan

$= \frac{1}{2/8} = 4$

Difference of days

$= 4 - \frac{8}{5} = \frac{20-8}{5} = 2\frac{2}{5}$

218. (c)



Completed work in '4' days = 11 × 4 = 44

remaining work = 60 – 44 = 16

New efficiency of A and C

A = 6 × 2 = 12

$C = 2 \times \frac{1}{2} = 1$

New efficiency of A + B + C

= 12 + 1 + 3 = 16

No. of days = $4 + \frac{16}{16}$ = 5 days

219. (a) 12man × 15 = 20 woman × 12 = Total work

3m = 4w

$\frac{m}{w} = \frac{4}{3} \rightarrow$ efficiency

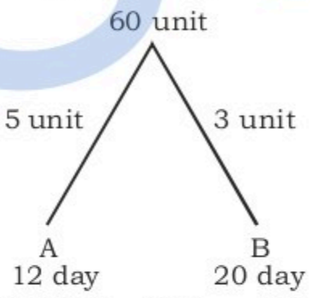
Total work = 12 × 4 × 15 = 720

(5m + 5w) × D = 720

D (5 × 4 + 5 × 3) = 720

$D = \frac{720}{35} = 20\frac{4}{7}$ days

220. (b)



5(A+B) +3C = 60 unit

5×8 +3c = 60

3C= 20

$C = \frac{20}{3}$ units/day

Time taken by C = $\frac{60}{\frac{20}{3}}$

$= \frac{60 \times 3}{20} = 9$ days

221. (a) Total work = 100

Remaining work

= 100 – 37 = 63

5A = 4B

$\frac{A}{B} = \frac{4}{5}$ efficiency

Total Effi. of A + B = 9

Work done by in 7 days

= 9 × 7 = 63

Time taken by B

$\frac{100}{5}$ = 20 days

222. (c) $20\% = \frac{1}{5}\left[\text{eff.} \propto \frac{1}{\text{days}}\right]$

	A		B
eff.	4	:	5
days	5	:	4
	↓×2		↓×2
	10 days		**8 days**

223. (c) Let the no. of days = x

$12 \times 90 = 30 \times 12 + (12 - 2 + 8)x$

$1080 - 360 = 18x$

$720 = 18x$

x = 40 days

224. (c) Let a man complete '1' piece of work in a day.

Then total work

= 50 unit

Then by statement 1st day

= one man × 1 work day = 1

Then by statement 2nd day

= two man × 1 work/day = 2

Then by statement 3rd day

= 3 man × 1 work/day = 3

Let the whole work will be completed in N day.

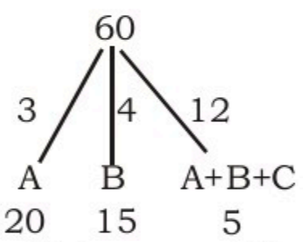
then total work = 1 + 2 + 3 + ... + N = 50

$\frac{N(N+1)}{2} = 50$

N(N + 1) = 100

Then N = 10 days (approx)

225. (d)



C's efficiency = 12 – 3 – 4 = 5

C will complete total work

$= \frac{60}{5}$ = 12 days

226. (d) $25\% = \frac{1}{4}\left[\text{efficiency} \propto \frac{1}{\text{day}}\right]$

	Shashi		Tanya
Eff.	4	:	5
Day	5	:	4
	↓×4		↓×4
	20		16

227. (d) According to question

$= \frac{M_1 H_1 R_1 D_1}{W_1} = \frac{M_2 H_2 R_2 D_2}{W_2}$

18M × 6 × 24 = 36B × 6 × 24

$\boxed{M = 2B}$

Now

18M × 6 × 24 = (24M + 24B) × 9 × D

Put $B = \frac{1}{2}M$

18M × 6 × 24 = (24M + 12M) × 9 × D

2M × 6 × 24 = 36 M × D

$\boxed{D = 8}$

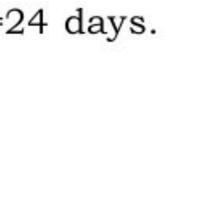
228. (c) $\frac{1}{3}$ work in 5 days

then complete work = 5 × 3 = 15 days

$B \rightarrow \frac{2}{5}$ work in 10 days

then B completes work in

$= 10 \times \frac{5}{2}$ = 25 days



(A + B) can do work = $\frac{75}{8} = 9\frac{3}{8}$ days

229. (a)

Efficiency of C = 15 – (9 + 3) = 3

C's Amount = $\frac{250}{15} \times 3$ = Rs. 50

230. (d)

B	A	
1	2	→ Efficiency ratio

Total work = 16 × (1 + 2) = 48

No. of days taken by A to complete the work

$= \frac{48}{2}$ =24 days.

231. (c) We know that

$$\text{time taken} \propto \frac{1}{\text{Efficiency}}$$

	A	:	B
efficiency	2	:	3
time	3	:	2

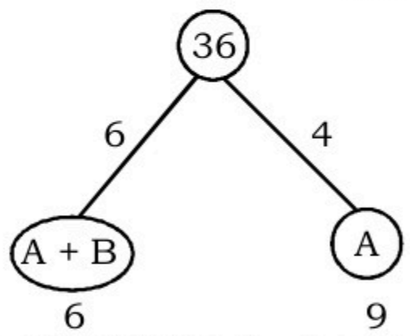
time taken by A : B = 3 : 2

232. (d) Let total work = 11 unit
so C did work = 11 – 9 = 2 unit
Share for 11 unit = Rs. 440

$$\text{So share for 2 unit} = \frac{440}{11} \times 2$$

$$= \text{Rs. } 80$$

233. (a)



B's efficiency = 6 – 4 = 2

$$\text{time taken by B} = \frac{36}{2}$$

$$= 18 \text{ days}$$

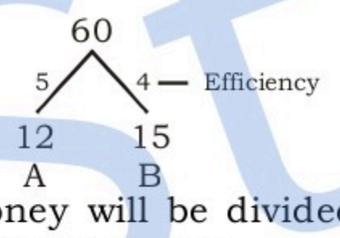
234. (b) 18A = 12A + 8B
6A = 8B

$$\frac{A}{B} = \frac{4}{3}$$

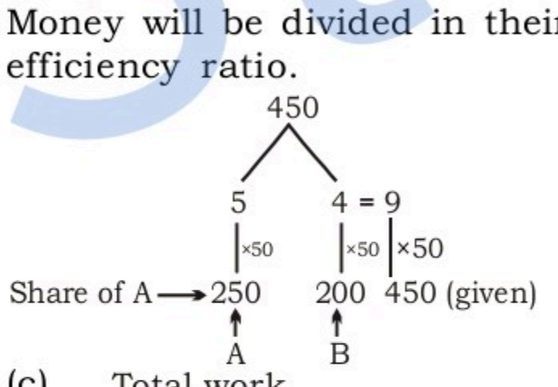
So, efficiency of A and B are 4, 3.
Total work = 18 × 4 = 72 Units

$$\text{So, B will do} = \frac{72}{3} = 24 \text{ days}$$

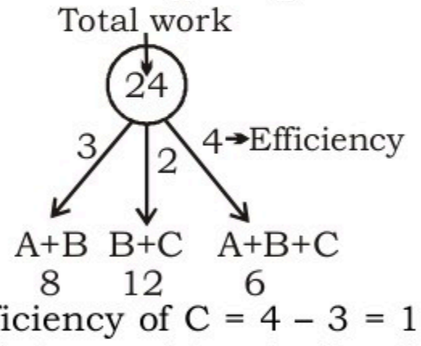
235. (c)



Money will be divided in their efficiency ratio.



236. (c)



Efficiency of C = 4 – 3 = 1
Efficiency of A = 4 – 2 = 2
Efficiency of B = 4 – 1 – 2 = 1
Efficiency of A + C = 2 + 1 = 3

$$\text{time taken by A + C} = \frac{24}{3}$$

$$= 8 \text{ days}$$

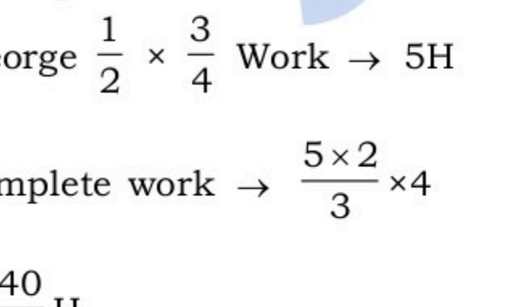
237. (b) $\text{Efficiency} \propto \frac{1}{\text{Time}}$

$$60\% = \frac{3}{5} \overset{+3}{\nwarrow}$$

	A	:	B
Efficiency →	5	:	8
Time →	8	:	5
	$\frac{3}{2}\times\downarrow$		$\downarrow\times\frac{3}{2}$

$$12 \text{ days } 7\frac{1}{2} \text{ days}$$

238. (a)



efficiency of S = 3 – 2 = 1

$$\text{Required time} = \frac{60}{1} = 60 \text{ hours}$$

239. (d) According to the questions

$$\text{John} \rightarrow \frac{1}{2} \text{ Work} \rightarrow 3H$$

$$\text{complete work} \rightarrow 6H$$

$$\text{Joe} \rightarrow \frac{1}{2} \times \frac{1}{4} \text{ Work} \rightarrow 1H$$

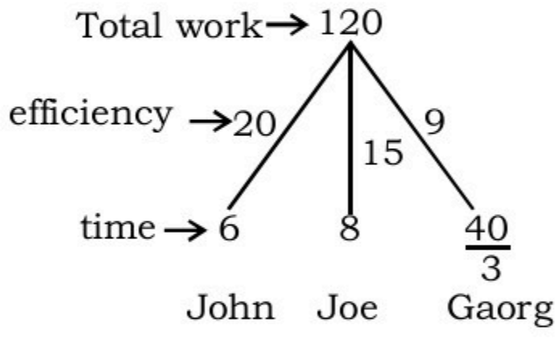
$$\text{complete work} \rightarrow 8H$$

$$\text{George } \frac{1}{2} \times \frac{3}{4} \text{ Work} \rightarrow 5H$$

$$\text{complete work} \rightarrow \frac{5\times2}{3}\times4$$

$$= \frac{40}{3} H$$

Now,



$$\text{Required time} = \frac{120}{20+15+9}$$

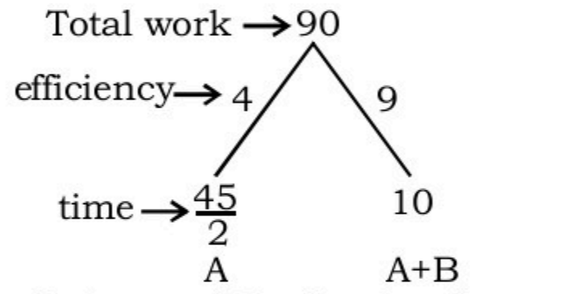
$$= \frac{120}{44} = 2\frac{8}{11}$$

240. (d) $A \rightarrow \frac{2}{5}$ Work = 9 day

$$A \rightarrow \text{complete work} = \frac{45}{2} \text{ day}$$

$$(A + B) \rightarrow \frac{3}{5} \text{ Work} = 6 \text{ day}$$

$(A + B) \rightarrow$ complete work = 10 day



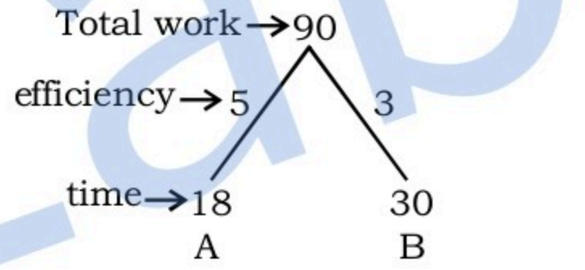
efficiency of B = 9 – 4 = 5
required time for B

$$= \frac{90}{5} = 18 \text{ days}$$

241. (a) Worked day of A = $\frac{63}{3.50}$ = 18 days

$$\text{Worked day of B} = \frac{75}{2.50} = 30 \text{ days}$$

Now,



$$\text{Required time} = \frac{90}{8} = \frac{45}{4} \text{ day}$$

cost = day × (wages of A + B)

$$= \frac{45}{4} \times (3.50 + 2.50) = ₹ 67.50$$

242. (c) $\frac{M}{B} = \frac{2}{1}$ (efficiency)

Now, given
(3M + 4B)×D = 10M × 8
(3 × 2 + 4 × 1)D = 10 × 2 × 8
10 × D = 10 × 16
D = 16 days

243. (c) P complete $\frac{1}{4}$th work in 10 days.

So P will complete the whole work in 40 days

$$\text{Q Completes } \left(40\% = \frac{2}{5}\text{th}\right)$$

work in 40 days
Q will complete the whole work

$$\text{in } \frac{40\times5}{2} = 100 \text{ days.}$$

R complete $\frac{1}{3}$ in 13 days.

R will complete whole work in 39 days.

Work will be finished firstly by the man who will take less days to complete it, So R will complete it first.

244. (c) By using formula

$M_1 D_1 H_1 = M_2 D_2 H_2$

$4 \times 8 \times 7 = M_2 \times 4 \times 8$

$\boxed{M_2 = 7 \text{ persons}}$

245. (d) By using formula

$$\frac{M_1 D_1 H_1}{W_1} = \frac{M_2 D_2 H_2}{W_2}$$

$$\frac{35 \times 32}{2/5} = \frac{M_2 \times 28}{3/5}$$

$\boxed{M_2 = 60}$

More men needed = 60 – 35 = 25

246. (c) By using formula = $M_1D_1H_1 = M_2D_2H_2$

According to question,

$5C = 4M \times 2$

$\frac{M}{C} = \frac{5}{8}$ (efficiency ratio)

again,

$\frac{M}{W} = \frac{2}{1}$ (efficiency ratio)

M : W : C

$2_{\times 5}$: $1_{\times 5}$

$5_{\times 2}$: $8_{\times 2}$

10 : 5 : 16

Now,

$20C = (12M + 10C + 8W)D$

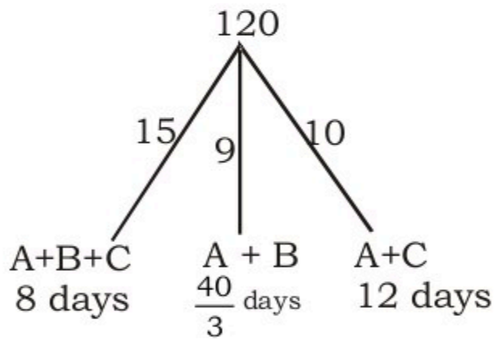
$20 \times 16 = (12 \times 10 + 10 \times 16 + 8 \times 5)D$

$320 = 320D$

$D = \frac{320}{320} = 1$

$\boxed{D = 1 \text{day}}$

247. (a)



C's efficiency = 15 – 9 = 6

B's efficiency = 15 – 10 = 5

A's efficiency = 15 – (6 + 5)

= 15 – 11 = 4

So, A : B : C = 4 : 5 : 6

248. (a) A and B together can complete the work in 12 days. They work for 5 days. So 7 days work of A + B is left and which is done by A in 14 days.

According to question,

$(A + B)7 = A \times 14$

$7A + 7B = 14A$

$7B = 7A$

$\boxed{A : B = 1 : 1}$

Now, $(A + B)\ 12 = A \times D$

$(1 + 1)12 = 1 \times D$

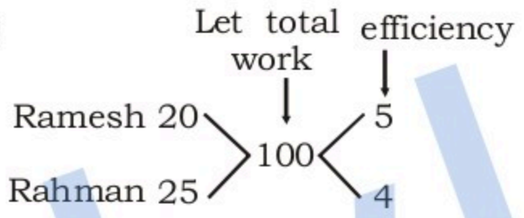
$\boxed{D = 24 \text{ days}}$

249. (b) $M_1 D_1 = M_2 D_2$

$24 \times 12 = 36 \times n$

n = 8 days

250. (d)



Ramesh and Rahman 10 days work is = (5 + 4) × 10 = 90

Remaining work = 100 – 90 = 10

This work is completed by Suresh in 3 days.

So Suresh efficiency is = $\frac{10}{3}$

Total work done by Suresh in

$= \frac{100}{10/3} = 30$ days

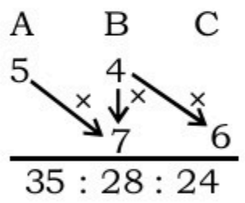
251. (a) $A \times 4 = B \times 5$ .....(i)

From $M_1P_1 = M_2P_2$

$\frac{A}{B} = \frac{5}{4}$

$B \times 6 = C \times 7$ .....(ii)

$\frac{B}{C} = \frac{7}{6}$



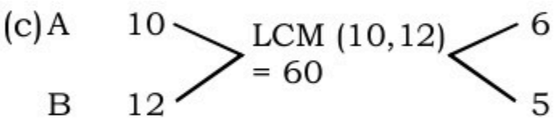
A completed the total work by working 7 days with per day efficiency is 35

Total work = 35 × 7

C done this work in = $\frac{35 \times 7}{24}$

$= \frac{245}{24} = 10\frac{5}{24}$ days

252. (c)



(A+B)'s 3 days work

= (6 + 5) × 3 = 33

As' 2 days work before c join A,

A = 6 × 2 = 12

Now remaining work

= 60 –(33 + 12) = 15

Now, the work is completed in 2 days

so, per day efficiency is

$= \frac{15}{2} = 7.5$

Let c's per day efficiency is (c)

so A and C combine per day efficiency is = A + C = 6 + C

So, 6 + C = 7.5

C = 1.5

So, work completed by c in = $\frac{60}{1.5}$

= 40 days

253. (a) From $M_1D_1 = M_2D_2$

$$\frac{M_1D_1}{M_2D_2} = \frac{5}{6}$$

$$\frac{(x-1)(x+1)}{(x+1)(x+2)} = \frac{5}{6}$$

$$\frac{(x-1)}{(x+2)} = \frac{5}{6}$$

$6x – 6 = 5x + 10$

$x = 16$