CHAPTER 11

# Mathematical Operation and Arithmetical Reasoning

1. After interchanging ÷ and +, 12 and 18, which one of the following equations becomes correct?
**(SSC CGL 1st Sit. 2010)**
(a) $(90 \times 18) + 18 = 60$ (b) $(18 + 6) \div 12 = 2$
(c) $(72 \div 18) \times 18 = 72$ (d) $(12 + 6) \times 18 = 36$

2. Find out the correct answer for the unsolved equation on the basis of the given equation
If $6 * 5 = 91$
$8 * 7 = 169$
$10 * 7 = 211$
then $11 * 10 = ?$ **(SSC CGL 1st Sit. 2010)**
(a) 331 (b) 993
(c) 678 (d) 845

3. In the following question, Δ stands for any of the mathematical signs at different places, which are given as choices under each question. Select the choice with the correct sequence of signs which when substituted makes the question. Select the choice with the correct sequence of signs which when substituted makes the question as a correct equation.
$24 \Delta 4 \Delta 5 \Delta 4$ **(SSC CGL 1st Sit. 2010)**
(a) ×+= (b) =×+
(c) +×= (d) None of these

4. Little wooden cubes each with a side of one inch are put together to form a solid cube with a side of three inches. This big cube is then painted red all over on the outside. When the big cube is broken up into the original little ones, how many cubes will have paint on two sides ?
**(SSC CGL 1st Sit. 2010)**
(a) 4 (b) 8
(c) 12 (d) 0

5. Ashok's mother was 3 times as old as Ashok 5 years ago. After 5 years she will be twice as old as Ashok How old is Ashok today ? **(SSC CGL 1st Sit. 2010)**
(a) 10 years (b) 15 years
(c) 20 years (d) 25 years

6. A bus leaves Delhi with half the number of women as men, At Meerut, ten men get down and five women get in. Now there are equal number of men and women. How many passengers boarded the bus initially at Delhi ?
**(SSC CGL 1st Sit. 2010)**
(a) 36 (b) 45
(c) 15 (d) 30

7. A bus left with some definite number of passengers. At the first stop, half the passengers left the bus and 35 boarded the bus. At the second stop $\frac{1}{5}$th of the passengers left and 40 boarded the bus. Then, the bus moved with 80 passengers towards its destination without stopping any where. How many passengers were there originally ?
**(SSC CGL 2nd Sit. 2010)**
(a) 25 (b) 30
(c) 40 (d) 50

8. A man is 3 years older than his wife and four times as old as his son. If the son becomes 15 years old after 3 years, what is the present age of the wife ? **(SSC CGL 2nd Sit. 2010)**
(a) 60 years (b) 51 years
(c) 48 years (d) 45 years

9. If $841 = 3,633 = 5,425 = 7$ then $217 = ?$
**(SSC CGL 2nd Sit. 2010)**
(a) 6 (b) 7
(c) 8 (d) 9

10. The following equations follow a common property. Find out the correct value to complete D :
A = 51 (714) 14 :
B = 61 (915) 15 :
C = 71 (1136) 16 :
D = 81 (?) 17 **(SSC CGL 2nd Sit. 2010)**
(a) (1377) (b) (1378)
(c) (1356) (d) (1346)

11. After interchanging ÷ and =, 2 and 3 which one of the following statements becomes correct ?
**(SSC CGL 2nd Sit. 2010)**
(a) $15 = 2 \div 3$ (b) $5 \div 15 = 2$
(c) $2 = 15 \div 3$ (d) $3 = 2 \div 15$

12. $25 * 2 * 6 = 4 * 11 * 0$
Which set of symbols can replace * ?
**(SSC CGL 2nd Sit. 2010)**
(a) ×, –, ×, + (b) +, –, ×, +
(c) ×, +, ×, – (d) ×, +, +, ×

13. Find the missing number from the given responses:
**(SSC CGL 2nd Sit. 2010)**

| | | |
|---|---|---|
| 5 | 6 | 12 |
| 4 | 3 | 4 |
| 2 | 3 | ? |
| 18 | 27 | 96 |

(a) 4 (b) 5
(c) 3 (d) 6

14. Ravi has spent a quarter $\left(\frac{1}{4}\right)$ of his life as a boy, one–fifth $\left(\frac{1}{5}\right)$ as a youth, one-third $\left(\frac{1}{3}\right)$ as man and thirteen (13) years in old age. What is his present age?
**(SSC CGL 1st Sit. 2011)**

(a) 70 years (b) 80 years
(c) 60 years (d) 65 years

15. Out of 100 families in the neighbourhood, 50 have radios, 75 have TVs and 25 have VCRs. Only 10 families have all three and each VCR owner also has a TV. If some families have radio only, how many have only TV? **(SSC CGL 1st Sit. 2011)**
(a) 30 (b) 35
(c) 40 (d) 45

16. In a certain office, $\frac{1}{3}$ of the workers are women, $\frac{1}{2}$ of the women are married and $\frac{1}{3}$ of the married women have children. If $\frac{3}{4}$ of the men are married and $\frac{2}{3}$ of the married men have children, then what part of workers are without children? **(SSC CGL 1st Sit. 2011)**
(a) $\frac{5}{18}$ (b) $\frac{4}{9}$
(c) $\frac{11}{18}$ (d) $\frac{17}{36}$

17. If '–' stands for '÷' '+' stands for '×' , '÷' for '–' and '×' for '+', which one of the following equations in correct? **(SSC CGL 1st Sit. 2011)**
(a) $30-6+5\times4\div2=27$
(b) $30+6-5\div4\times2=30$
(c) $30\times6\div5-4+2=32$
(d) $30\div6\times5+4-2=40$

18. Some equations have been solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis. If 9 * 7 = 32, 13 * 7 = 120, 17 * 9 = 208, then 19 * 11 = ? **(SSC CGL 1st Sit. 2011)**
(a) 150 (b) 180
(c) 210 (d) 240

19. Forecast the Growth Rate for the year 1995 from the following data: **(SSC CGL 1st Sit. 2011)**

| Years → | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| Growth Rate → | 3.5 | 3.7 | 4.1 | 4.9 | 6.5 | ? |

(a) 7.8 (b) 8.6
(c) 9.7 (d) 9.9

20. The population of rats is increasing year after year in a village. Find out the missing population from the following information: **(SSC CGL 2nd Sit. 2011)**

| **Years** | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Population** | 4 | 8 | 16 | ? | 44 | 64 |

(a) 22 (b) 32
(c) 28 (d) 34

21. Shan is 55 years old, Sathian is 5 years junior to Shan and 6 years senior to Balan. The youngest brother of Balan is Devan and he is 7 years junior to him. So what is the age difference between Devan and Shan? **(SSC CGL 2nd Sit. 2011)**
(a) 18 years (b) 15 years
(c) 13 years (d) 7 years

22. There are 80 families in a small extension area. 20 per cent of these families own a car each. 50 per cent of the remaining families own a motor cycle each. How many families in that extension do not own any vehicle? **(SSC CGL 2nd Sit. 2011)**
(a) 30 (b) 32
(c) 23 (d) 36

23. Some equations have been solved on the basis of certain system. Find the correct answer for the unsolved equation on that basis. **(SSC CGL 2nd Sit. 2011)**
If 94 + 16 = 42, 89 + 23 = 78, then 63 + 45 = ?
(a) 18 (b) 28
(c) 38 (d) 48

24. Some relationships have been expressed through symbols which are explained below:
0 = greater than
Δ = not equal to
× = not less than
+ = equal to
ϕ = not greater than
∇ = less than
a ∇ b ∇ c implies **(SSC CGL 1st Sit. 2012)**
(a) a Δ b ϕ c (b) a ϕ b + c
(c) a 0 b + c (d) a 0 b × c

25. If 54 + 43 = 2, 60 + 51 = 10, then 62 + 72 = ? **(SSC CGL 1st Sit. 2012)**
(a) 30 (b) 18
(c) 20 (d) 9

26. If L denotes × M denotes ÷ ; P denotes + ; Q denotes – then 16 P 24 M 8 Q 6 M 2 L 3 = ? **(SSC CGL 1st Sit. 2012)**
(a) 10 (b) 9
(c) 12 (d) 11

27. If 16 – 2 = 2, 9 – 3 = 0, 81 – 1 = 8, then what is 64 – 4? **(SSC CGL 1st Sit. 2012)**
(a) 4 (b) 2
(c) 6 (d) 8

28. Volume of a sphere is equal to the volume of a hemisphere. If the radius of the hemisphere is $3\sqrt[3]{2}$ cm, then the radius of the sphere is equal to **(SSC CGL 1st Sit. 2012)**
(a) $9\sqrt[3]{2}$ cm (b) $6\sqrt[3]{2}$ cm
(c) 27 cm (d) 3 cm

29. If 64 ÷ 14 = 5, 92 ÷ 31 = 7, 26 ÷ 11 = 6, then 56 ÷ 22 = ? **(SSC CGL 2nd Sit. 2012)**
(a) 11 (b) 39
(c) 7 (d) 36

30. If P denotes ÷, Q denotes ×, R denotes +, and S denotes –, then, 1 8 Q 1 2 P 4 R 5 S 6 = ? **(SSC CGL 2nd Sit. 2012)**
(a) 95 (b) 53
(c) 51 (d) 57

31. If 25 ÷ 5 = 15, 30 ÷ 6 = 20, then 35 ÷ 7 = ? **(SSC CGL 2nd Sit. 2012)**
(a) 75 (b) 20
(c) 50 (d) 25

32. If $33 + 45 = 30, 90 + 26 = 40$, then $30 + 45 = \underline{?}$ **(SSC CGL 2nd Sit. 2012)**
(a) 15 (b) 14
(c) 16 (d) 18

33. The average age of 25 suboridinates in an office is 30 years. If the age of Manager is added, the average increases to 31 years. What is the age of the Manager? **(SSC CGL 1st Sit. 2012)**
(a) 26 (b) 36
(c) 46 (d) 56

34. Class A has students twice that of class B. After adding 20 students to class A and 30 students to class B, the total number of students in both the classes is 140. What is the number of students in class A in the beginning? **(SSC CGL 1st Sit. 2012)**
(a) 30 (b) 60
(c) 80 (d) 140

35. Find the lowest number which when divided by 8, 12, 15 and 20 leaves the remainder 2. **(SSC CGL 1st Sit. 2012)**
(a) 360 (b) 242
(c) 122 (d) 82

36. If $38 + 15 = 66$ and $29 + 36 = 99$, then $82 + 44 = ?$ **(SSC CGL 1st Sit. 2012)**
(a) 77 (b) 88
(c) 80 (d) 94

37. If + means ÷, – means ×, × means +, ÷ means –, give the value for $45 + 9 - 3 \times 15 \div 2$ **(SSC CGL 1st Sit. 2012)**
(a) 40 (b) 36
(c) 56 (d) 28

38. From the given details, estimate the number of people affected by Tuberculosis in particular locality in the year 1994. **(SSC CGL 1st Sit. 2012)**

| 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|
| ? | 92 | 113 | 141 | 176 |

(a) 99 (b) 85
(c) 71 (d) 78

39. A boy's age is one fourth of his father's age. The sum of the boy's age and his father's age is 35. What will be father's age after 8 years? **(SSC CGL 2nd Sit. 2012)**
(a) 15 (b) 28
(c) 35 (d) 36

40. If + means ÷, – means ×, × means +, ÷ means –, then $90 + 18 - 6 \times 30 \div 4 = ?$ **(SSC CGL 2nd Sit. 2012)**
(a) 64 (b) 65
(c) 56 (d) 48

41. If $73 + 46 = 42$ and $95 + 87 = 57$, then $62 + 80 = ?$ **(SSC CGL 2nd Sit. 2012)**
(a) 32 (b) 48
(c) 64 (d) 36

42. Based on the given data, estimate the number of 'Television-buyers' for the year 1990. **(SSC CGL 2nd Sit. 2012)**

| 1982 | 1984 | 1986 | 1988 | 1990 |
|---|---|---|---|---|
| 447 | 458 | 489 | 540 | ? |

(a) 611 (b) 591
(c) 571 (d) 601

43. A car travels 20 miles in the same time as another car, travelling 20 MPH faster, covers 30 miles. How long does the journey take? **(SSC Sub. Ins. 2012)**
(a) 31 minutes (b) 29 minutes
(c) 30 minutes (d) 28 minutes

44. Complete the third equation on the basis of a certain system followed in the first two equations.
1. $1 \times 8 \times 5 \times 3 \times 7 = 73581$
2. $5 \times 7 \times 6 \times 2 \times 4 = 42675$
3. $9 \times 4 \times 3 \times 2 \times 8 = ?$ **(SSC Sub. Ins. 2012)**
(a) 83924 (b) 82349
(c) 28394 (d) 28934

45. If $64 + 53 = 4, 86 + 42 = 4$, then $83 + 72 = ?$ **(SSC Sub. Ins. 2012)**
(a) 12 (b) 10
(c) 15 (d) 18

46. If Q means add to, J means multiply by, T means subtract from, K means divided by, then
30 K 2 Q 3 J 6 T 5 = ? **(SSC Sub. Ins. 2012)**
(a) 18 (b) 28
(c) 31 (d) 103

47. If I means '×', You means '÷', We means '–' and He means '+', then what will be the value of 8 I 12 He 16 You 2 We 10? **(SSC Sub. Ins. 2012)**
(a) 45 (b) 94
(c) 96 (d) 112

48. At present, the ratio between the ages of Arun and Deepak is 4 : 3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present? **(SSC Sub. Ins. 2013)**
(a) 15 years (b) 19 years
(c) 24 years (d) 12 years

**DIRECTIONS (Qs. 49-50) :** *In each of the following questions,. some equations are solved on the basis of a certain system. On the same basis, find out the correct answer for the unsolved equation.* **(SSC Sub. Ins. 2013)**

49. If $235 = 38$ and $452 = 45$, then $345 = ?$
(a) 49 (b) 66
(c) 72 (d) 50

50. $2 \times 3 = 49, 5 \times 6 = 2536, 1 \times 9 = 181, 4 \times 7 = ?$
(a) 1628 (b) 1649
(c) 2549 (d) 1219

51. If '×' means '+', '÷' means '–', + means '÷' and '–' means '×' then what should be the value of the given equation?
$14 \times 4 \div 70 + 10 - 2 = ?$
(a) 33 (b) 15
(c) 30 (d) 4

52. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.
5 * 5 * 5 * 3 * 10
(a) × + = × (b) + – × =
(c) + ÷ = × (d) + ÷ × =

53. If '+' means '÷' ; '÷' means '–' ; '–' means '×' ; '×' means '+', then
$8 + 2 \div 3 - 4 \times 6 = ?$ **(SSC CHSL 2012)**
(a) –12 (b) –2
(c) –10 (d) –15

54. Choose the appropriate combination of signs to solve.
16 * 8 * 1 * 8 **(SSC CHSL 2012)**
(a) = – + (b) – + =
(c) + – = (d) + = –

55. The percentage of Laptop users are increasing year after year in India. Find out the percentage of Laptop users for the year 2011 from the following information.
**(SSC CHSL 2012)**

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| No. of users (%) | 4 | 8 | 16 | 28 | 44 | ? |

(a) 62 (b) 64
(c) 66 (d) 60

56. If $4 \times 2 \times 6 = 1626$, $3 \times 7 \times 4 = 974$, then $5 \times 6 \times 8 = ?$
**(SSC Multitasking 2013)**
(a) 3658 (b) 2568
(c) 5664 (d) 6456

57. If '+' means '÷', '×'means '+', '–' means '×' and '÷' means '–', then which of the following equations is correct?
**(SSC Multitasking 2013)**
(a) $36 + 6 - 3 \times 2 = 20$
(b) $36 \times 6 + 3 - 2 < 20$
(c) $36 \times 6 + 3 \times 2 > 20$
(d) $36 + 6 \times 3 + 2 = 20$

58. A father is 5 times as old as his son. His son is 6 years old. After how many years, will the father be 4 times as old as his son? **(SSC Multitasking 2013)**
(a) 2 years (b) 5 years
(c) 6 years (d) 4 years

59. What is the least number to be subtracted from 2486 to make it a perfect square ? **(SSC CGL 1st Sit. 2013)**
(a) 80 (b) 85
(c) 90 (d) 95

60. In a question paper, there are 12 questions in all out of which only six are to be answered. Six questions have an alternative each. Each question has four parts. How many questions including parts are there in the question paper?
**(SSC CGL 1st Sit. 2013)**
(a) 24 (b) 48
(c) 72 (d) 96

61. If × stands for addition, < for subtraction, + stands for division, > stands for multiplication, – stands for equal, ÷ stands for greater than, and = stands for less than, state which of the following is true ? **(SSC CGL 1st Sit. 2013)**
(1) $3 \times 2 < 4 \div 16 > 2 + 4$ (2) $5 > 8 + 4 = 10 < 4 \times 8$
(3) $3 \times 4 > 2 - 9 + 3 < 3$ (4) $5 \times 3 < 3 \div 8 + 4 \times 1$
(a) Only 1 is true (b) Only 2 is true
(c) Both 2 and 4 is true (d) Only 3 is true

62. If $55 + 66 = 33$ and $22 + 99 = 33$, what is $44 + 88$ ?
**(SSC CGL 1st Sit. 2013)**
(a) 33 (b) 36 (c) 38 (d) 40

63. Pipe A can fill a tank completely in 5 hours. However, on account of a leak at the tank, it takes 3 more hours to fill the tank. How long will the leak take to empty the full tank when pipe A is closed/shut ? **(SSC CGL 1st Sit. 2013)**
(a) 13 hours 20 minutes (b) 7.5 hours
(c) 14 hours 40 minutes (d) 12 hours 20 minutes

64. If '+' stands for 'multiplication', '<' stands for 'division', '÷' stands for 'subtraction', '–' stands for 'addition' and '×' stands for 'greater than', identify which expression is correct.
**(SSC CGL 2nd Sit. 2013)**
(a) $20 - 4 \div 4 + 8 < 2 \times 26$ (b) $20 \times 8 + 15 < 5 \div 9 - 8$
(c) $20 < 2 + 10 \div 4 - 6 \times 100$ (d) $20 < 5 + 25 \div 10 - 2 \times 96$

65. Which of the following interchanges of numbers would make the given equation correct?
$8 \times 20 \div 3 + 9 - 5 = 38$ **(SSC CGL 1st Sit. 2013)**
(a) 8, 9 (b) 3, 5 (c) 3, 9 (d) 3, 8

66. Put the correct mathematical signs in the following equation from the given alternatives.
$33 \underline{?} 11 \underline{?} 3 \underline{?} 6 = 115$ **(SSC CGL 1st Sit. 2013)**
(a) ×, ÷, – (b) ÷, ×, ×
(c) –, ×, + (d) +, –, ×

67. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.
15 * 24 * 3 * 6 * 17 **(SSC CGL 1st Sit. 2013)**
(a) + × = ÷ (b) – × = +
(c) – ÷ + = (d) + ÷ – =

68. If '–' stand for addition, '+' stands for subtraction, '÷' stands for multiplication and '×' stands for division, then which one of the following equations is correct?
**(SSC CGL 1st Sit. 2013)**
(a) $25 \times 5 \div 20 - 27 + 7 = 120$
(b) $25 + 5 \times 20 - 27 \div 7 = 128$
(c) $25 + 5 - 20 + 27 \times 7 = 95$
(d) $25 - 5 + 20 \times 27 \div 7 = 100$

69. In the following question, some relationship have been expressed through symbols which are
× = greater than θ = not less than
÷ = less than β = not greater than
+ = equal to ϕ = not equal to,
then A θ B × C implies **(SSC CGL 1st Sit. 2013)**
(a) B θ C (b) A ÷ C
(c) A ϕ C (d) B β C

70. If $63 - 30 = 30$, $72 - 10 = 40$, then $81 - 60 = ?$
**(SSC CGL 1st Sit. 2013)**
(a) 50 (b) 35
(c) 15 (d) 20

71. The average age of father and his son is 22 years. The ratio of their ages is 10 : 1 respectively. What is the age of the son ?
**(SSC CGL 1st Sit. 2013)**
(a) 24 (b) 4
(c) 40 (d) 14

72. In a certain code, LONDON is coded as 24 – 30 – 28 – 8 – 30 – 28. How will FRANCE be coded?
**(SSC CGL 1st Sit. 2013)**
(a) 10 – 24 – 6 – 28 – 6 – 12
(b) 12 – 26 – 6 – 28 – 8 – 10
(c) 12 – 36 – 2 – 28 – 6 – 10
(d) 12 – 26 – 2 – 28 – 8 – 10

73. If $29 \times 48 = 576$, $35 \times 16 = 90$, $22 \times 46 = 96$, then $42 \times 17 = ?$ **(SSC CGL 1st Sit. 2013)**
(a) 56 (b) 286
(c) 48 (d) 64

74. If 'P' denotes 'multiplied by', 'T' denotes 'subtracted from', 'M' denotes 'added to' and 'B' denotes 'divided by' then : what should be the correct response of
12P6M 15 T 16 B 4 ? **(SSC CGL 1st Sit. 2013)**
(a) 70 (b) 75
(c) 83 (d) 110

75. If + = Greater than, ϕ = Not greater than, – = Not less than, × = Equal to, | = Less than and L = Not equal to, then of A | B × C which of the following is true ? **(SSC CGL 1st Sit. 2013)**
(a) B + C | A (b) C – B + A
(c) B | A | C (d) A ϕ B | C

76. Identify one response which would be a correct inference from the given premises stated according to the following symbols :
'A' stands for not greater than
'B' stands for equal to
'C' stands for less than
'D' stands for not less than
'E' stands for not equal to **(SSC CGL 1st Sit. 2013)**
'F' stands for greater than Premises (2 M B N) and (2N A 3K)
(a) 2M D 3K (b) 2M B 3K
(c) 2M C 3K (d) 2K B 3N

77. Rahim and his uncle differ in their ages by 30 years. After 7 years, if the sum of their ages is 66, what will be the age of the uncle ? **(SSC CHSL 2013)**
(a) 39 (b) 41
(c) 51 (d) 49

**DIRECTIONS :** In questions no. 78 and 79, some equations are solved on the basis of a certain system. On the same basis, find out the correct answer for the unsolved equation.

**(SSC CHSL 2013)**

78. If 782 = 20
and 671 = 17, then
884 = ?
(a) 26 (b) 23
(c) 32 (d) 19

79. 5 × 6 × 4 = 456, 3 × 6 × 5 = 536,
4 × 8 × 7 = ?
(a) 847 (b) 784
(c) 748 (d) 478

80. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.
9 * 7 * 2 * 3 * 10 **(SSC CHSL 2013)**
(a) + – × = (b) – ÷ × =
(c) ÷ × + = (d) – + ÷ =

81. If '+' denotes ÷, '–' denotes ×, '×' denotes – and '÷' denotes +, then
35 + 7 – 5 ÷ 5 × 6 = ? **(SSC CHSL 2013)**
(a) 20 (b) 14
(c) 36 (d) 24

82. 3 daily wage workers A, B and C are distributed ` 178 in such a way that A gets ` 4 less than C, B gets ` 15 more than A and C gets ` 11 less than B. What is the ratio of their shares?
**(SSC CHSL 2013)**
(a) 53 : 68 : 57 (b) 57 : 53 : 68
(c) 50 : 51 : 52 (d) 53 : 56 : 68

83. A Woman has only 25 p and 50 p coins in her bag. If in all she has 40 coins which total rupees 12.75, then the number of 50 p coins is **(SSC Stenographer 2013)**
(a) 15 (b) 17
(c) 11 (d) 13

84. The age of Sunita's father today is four times as that of her age. After 8 years, the age of her father will be three times that of her age. What is Sunita's age today?
**(SSC Steno. 2013)**
(a) 24 years (b) 20 years
(c) 18 years (d) 16 years

85. If 5 + 7 = 21 and 9 + 4 = 31, what is 7 + 9 = ?
**(SSC Steno. 2013)**
(a) 41 (b) 51
(c) 61 (d) 71

86. If 532 + 781 = 21 and 862 + 910 = 21, then what is the value of 796 + 355 = ? **(SSC Steno. 2013)**
(a) 21 (b) 30
(c) 31 (d) 22

87. If '–' stands ÷ ; '+' stands for '×'; '÷' stands for '–' and '×' stands for '+', which one of the following is correct?
**(SSC Steno. 2013)**
(a) 10 + 5 - 5 ÷ 5 × 5 = 10
(b) 10 – 5 + 5 ÷ 5 × 5 = 25
(c) 10 × 5 ÷ 5 + 5 – 5 = 0
(d) 10 ÷ 5 × 5 ÷ 5 = 5

88. Praveen is twice as old as Roopa and 6 years older than Deepak. If Deepak is 12 years, How old is Roopa?
**(SSC Steno. 2013)**
(a) 9 (b) 8
(c) 11 (d) 6

89. If p means -, q means +, r means ÷ and s means ×, then 18 p 6 q 4 s 6 r 2 = ? **(SSC Steno. 2014)**
(a) 24 (b) 12
(c) 26 (d) 128

90. If 9 – 8 – 7 = 876, 6 – 4 – 2 = 531, then 8 – 5 – 3 = ?
**(SSC Steno. 2014)**
(a) 647 (b) 741
(c) 742 (d) 572

91. If '–' denotes '+'
'÷' denotes '×'
'+' denotes '–'
'×' denotes '÷'
then 27 × 3 ÷ 6 + 9 – 8 = ? **(SSC Steno. 2016)**
(a) 53 (b) 3.5
(c) 15 (d) 14.5

92. What will be the correct mathematical signs that can be inserted in the following ?
4_6_2_4_8 = 30 **(SSC Steno. 2016)**
(a) + + – × (b) × + – +
(c) – × + + (d) + + × –

93. Select the correct combination of mathematical signs to replace * signs and to balance the following equation :
35 * 7 * 25 * 15 * 2
**(SSC Multitasking 2014)**
(a) + ÷ = × (b) ÷ + = ×
(c) × = ÷ + (d) ÷ = ÷ ×

94. Some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.
If $7 \times 9 \times 6 \times 5 = 5 \times 7 \times 4 \times 3$,
then $8 \times 4 \times 14 \times 12 = ?$ **(SSC Multitasking 2014)**
(a) $5 \times 3 \times 7 \times 10$ (b) $6 \times 3 \times 9 \times 11$
(c) $6 \times 2 \times 12 \times 10$ (d) $6 \times 4 \times 8 \times 9$

95. An insect is walking in a straight line. It covers a distance of 15 cm per minute. It comes back 2.5 cm after every 15 cm. How long will it take to cover a distance of 1 metre ? **(SSC CGL 2014)**
(a) 6.5 min (b) 8 min
(c) 10 min (d) 12 min

96. If 1 candle in box number 1 is placed in box number 2, then box-2 has twice the number of candles that box 1 has.
If 1 candle from box-2 is placed in box-1, the box-2 and box-1 have the same number of candles.
How many candles were there in box-1 and box-2 ?
Box--1 Box-2 Box-1 Box-2 **(SSC CGL 2014)**
(a) $\boxed{5}:\boxed{3}$ (b) $\boxed{7}:\boxed{5}$
(c) $\boxed{6}:\boxed{4}$ (d) $\boxed{5}:\boxed{7}$

97. Which of the following interchange of signs would make the equation correct ?
$6 \times 4 + 2 = 16$ **(SSC CGL 2014)**
(a) + and ×, 2 & 4 (b) + and ×, 4 & 6
(c) + and ×, 2 & 6 (d) + and ×, 3 & 4

98. Select the correct combination of mathematical sings to replace the * signs and to balance the following equation :
45 * 3 * 6 * 2 * 16 **(SSC CGL 2014)**
(a) + × ÷ = (b) + ÷ × =
(c) + × – = (d) + + – =

99. Select the correct combination of mathematical signs to replace * signs and to balance the following equation :
8 * 5 * 10 * 2 * 25 **(SSC CGL 2014)**
(a) + × ÷ = (b) + ÷ – =
(c) × + = × (d) × – = ×

100. On one side of a street are even numbers and on the other side are odd numbers. No. 1 is exactly in front of No. 2. My House is No. 9. From my house , a man comes up from No. 2 and knocks at the door, five doors beyond the house infront of me. What is the No. of that house ? **(SSC CGL 2014)**
(a) 18 (b) 20
(c) 22 (d) 26

101. Govind is 48 years old. He is twice as old as his son Prem is now. How old was Prem seven years before ? **(SSC Sub. Ins. 2014)**
(a) 16 (b) 17
(c) 13 (d) 18

102. If '–' stands for '+', '+' stands for '×', '×' stands for '–' then which one of the following is not correct ? **(SSC Sub. Ins. 2014)**
(a) $22 + 7 - 3 \times 9 = 148$ (b) $33 \times 5 - 10 + 20 = 228$
(c) $7 + 28 - 3 \times 52 = 127$ (d) $44 - 9 + 6 \times 11 = 87$

103. Some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis. **(SSC Sub. Ins. 2014)**
$5 * 6 = 35, 8 * 4 = 28, 6 * 8 = ?$
(a) 46 (b) 34
(c) 23 (d) 38

104. Select the correct combination of mathematical signs to replace * signs and to balance the following equation.
$12 * 3 * 4 = 6 * 8 * 8$ **(SSC Sub. Ins. 2014)**
(a) +, ×, –, × (b) ×, +, –, ×
(c) ×, +, ×, – (d) ×, –, ×, +

105. Mani is double the age of Prabhu. Ramona is half the age of Prabhu. If Mani is sixty, find out the age of Ramona. **(SSC CHSL 2014)**
(a) 20 (b) 15
(c) 10 (d) 24

106. Let
N = 11 O = 13 P = 17
Find the letter to be in the box in the relation given :
$(N \times \square + M) \div K = 31$ **(SSC CHSL 2014)**
(a) L (b) P
(c) J (d) O

107. Some equations are solved on the basis of a certain system. On the same basis, find out the correct answer for the unsolved equation. **(SSC CHSL 2014)**
$2 \times 3 \times 4 = 432$, $5 \times 6 \times 7 = 765$
$7 \times 8 \times 9 = 987$, $2 \times 5 \times 7 = ?$
(a) 572 (b) 752
(c) 725 (d) 257

108. The overall rainfall in certain region of India decreases year after year. Find out from the data the trend in decrease. **(SSC CHSL 2014)**

| Year | Rain fall (in mm) |
|---|---|
| 2009 | 26 |
| 2010 | 25 |
| 2011 | 23 |
| 2012 | 20 |
| 2013 | 16 |
| 2014 | 11 |
| 2015 | ? |

(a) 6mm (b) 7mm
(c) 5mm (d) 8mm

109. A train starts from station A and reaches B 15 minutes late when it moves with 40 km/hr and 24 minutes late when it goes 30 km/hr. The distance between the two stations is **(SSC CGL 1st Sit. 2015)**
(a) 16 km (b) 18 km
(c) 21 km (d) 24 km

110. If, + stands for division; × stands for addition ; – stands for multiplication : ÷ stands for subtraction, which of the following is correct ? **(SSC CGL 1st Sit. 2015)**
A. $46 \times 6 \div 4 - 5 + 3 = 74$
B. $46 - 6 + 4 \times 5 \div 3 = 71$
C. $46 \div 6 \times 4 - 5 + 3 = 75.5$
D. $46 \times 6 - 4 + 5 \div 3 = 70.1$
(a) D (b) B
(c) A (d) C

111. If + = ×, – = ÷, × = +, ÷ = –, then which is the correct equation out of the following? **(SSC CGL 1st Sit. 2015)**
(a) 18 ÷ 6 + 4 – 2 ÷ 3 = 22
(b) 18 + 6 – 4 × 2 ÷ 3 = 26
(c) 18 × 6 – 4 + 7 × 8 = 47
(d) 18 – 6 × 7 ÷ 2 + 8 = 63

112. Find the number that is common for all of the clue's given below : **(SSC CGL 1st Sit. 2015)**
(A) Virgo
(B) Volleyball
(C) Highest scoring shot of a particular sport
(D) Extra sensory perceptions.
(a) 8 (b) 4
(c) 2 (d) 6

113. To identify the correct response from the given premises stated according to following symbols.
'A' stands for not less that ($\not<$)
'B' stands for not equal to ($\neq$)
'C' stands for not greater than ($\not>$)
'D' stands for greater than (>)
'E' stands for less than (<)
'F' stands for equal to (=)
Premises 4YF3x and 3xF6Z **(SSC CGL 1st Sit. 2015)**
(a) 2 Y F 3 Z (b) 4 Y B 5 Z
(c) 2 Y D 3 Z (d) 2 Y E 3 Z

114. If '+' means '×', '–' means '÷', '×' means '–' and '÷' means '+', then what will be the value of 16 ÷ 64 – 8 × 4 + 2 ? **(SSC CGL 1st Sit. 2015)**
(a) 12 (b) 24
(c) 16 (d) 18

115. Two persons A and B get the same salary. Their Basic pay are different. The allowances are 65% and 80% of the basic pay respectively. What is the ratio of the basic pay ? **(SSC Sub. Ins. 2015)**
(a) 7:5 (b) 17:15
(c) 12:11 (d) 11:10

116. A man climbing up a wall of 24 metres high, climbs 16 m on one day but slipped back by 3m 40cms in the evening. How far had the man reached on that day? **(SSC Sub. Ins. 2015)**
(a) 12.6 m (b) 19 m 40 cm
(c) 12 m 40 cm (d) 11.4 m

117. Two horses A and B run at a speed of 3:2 ratio in the first lap; during the second lap the ratio differs by 4:7; during the third lap the ratio differs by 8:9. What is the difference in ratio of speed altogether between the two horses. **(SSC Sub. Ins. 2015)**
(a) 3 (b) 2
(c) 4 (d) 1

118. If a represents ÷, 'b' represents +, 'c' represents – and 'd' represents × then 24a 6d 4b 9c 8 = ? **(SSC Sub. Ins. 2015)**
(a) 6 (b) 17
(c) 20 (d) 19

119. Some equations are solved on the basis of certain system. find out the correct answer for the unsolved equation on that basis: 7 × 6 × 4 = 674, 8 × 5 × 3 = 583, 9 × 1 × 2 = ? **(SSC Sub. Ins. 2015)**
(a) 727 (b) 292
(c) 192 (d) 462

120. Change the symbol and solve accordingly to find out correct answer from the alternatives given below 9 × 8 × 7 = 24, 4 × 7 × 3 = 14, 2 × 1 × 9 = ? **(SSC Sub. Ins. 2015)**
(a) 12 (b) 11
(c) 18 (d) 10

121. If '–' stands for addition, '+' stands for multiplication, '÷' stands for subtraction and '×' stands for division, which one of the following equations is correct? **(SSC CHSL 2015)**
(a) 5 + 2 – 12 × 6 ÷ 2 = 10 (b) 5 ÷ 2 + 12 × 6 – 2 = 4
(c) 5 – 2 + 12 × 6 ÷ 2 = 27 (d) 5 + 2 – 12 ÷ 6 × 2 = 13

122. If P denotes ÷ Q denotes ×, R denotes + and S denotes –, then 16Q12P6R5S4? **(SSC CHSL 2015)**
(a) 32 (b) 33
(c) 30 (d) 31

123. Some equations have been solved on the basis of certain system. Find the correct answer for the unsolved equations on that basis ? **(SSC CHSL 2015)**
If 72 × 19 = 23, 13 × 48 = 35 and 16 × 43 = 18 then 39 × 22 = ?
(a) 27 (b) 51
(c) 31 (d) 21

124. If + means ÷, ÷ means ×, and × means +, then following will be :
64 + 8 × 32 ÷ 4 **(SSC CHSL 2015)**
(a) 128 (b) 160
(c) 136 (d) 144

125. If '×' means 'addition', '–' means 'division', '/' means 'subtraction' and '+' means 'multiplication', then which of the equation is correct **(SSC CGL 1st Sit. 2016)**
(a) 25 + 10 – 5/ 10 × 3 = 43
(b) 25 – 10 × 5 + 10/3 = 72
(c) 25 × 10/5 + 10 – 3 = 12
(d) 25/10 + 5 × 10/3 = 18

126. In this question, some equations are solved on the basis of a certain system. On the same basis find out the correct answer from amongst the four alternatives for the unsolved equation.
53 – 34 = 5334
65 – 46 = 6456
75 – 24 = ? **(SSC CGL 1st Sit. 2016)**
(a) 7542 (b) 7524 (c) 7452 (d) 7254

127. If '+' means '/', '/' means '–', '–' means '×', '×' means '+', then 24 + 8/2–6 × 6 = ? **(SSC CGL 1st Sit. 2016)**
(a) –10 (b) –3
(c) 12 (d) 21

128. In this question, some equations are solved on the basis of a certain system. On the same basis find out the correct answer from amongst the four alternatives for the unsolved equation.
7 × 6 × 8 = 678
8 × 9 × 7 = 987
6 × 5 × 7 = 567
5 × 4 × 6 = ? **(SSC CGL 1st Sit. 2016)**
(a) 456 (b) 564
(c) 645 (d) 654

129. If '×' means addition, '–' means division, '÷' means subtraction and '+' means multiplication, then which of the equations is correct? **(SSC CGL 1st Sit. 2016)**
(a) 16 × 5 ÷ 10 + 4 – 3 = 19
(b) 16 + 5 ÷ 10 × 4 – 3 = 9
(c) 16 + 5 – 10 × 4 ÷ 3 = 9
(d) 16 – 5 × 10 ÷ 4 + 3 = 12

130. If $4 \times 5 \times 2 = 524$, $3 \times 7 \times 2 = 723$ and $6 \times 8 \times 7 = 876$ then $9 \times 4 \times 5 = ?$ **(SSC CGL 1st Sit. 2016)**
(a) 495 (b) 459 (c) 549 (d) 954

131. If' + ' means minus , ' - ' means multiplication, ' ÷ ' means plus, and '×' means division , then 15 - 3 + 10 × 5 ÷ 5 **(SSC CGL 1st Sit. 2016)**
(a) 52 (b) 48 (c) 22 (d) 5

132. A certain system is followed to solve the problem. Accordingly find out the correct answer from the alternatives for the unsolved equations.
$7 \times 4 \times 9 = 479$
$9 \times 5 \times 2 = 592$
$6 \times 9 \times 5 = 965$
$8 \times 6 \times 2 = ?$ **(SSC CGL 1st Sit. 2016)**
(a) 286 (b) 682 (c) 628 (d) 268

133. The age of Dr. Pandey is four times the age of his son. After 10 years , the age of Dr. Pandey will be twice the age of his son . The present age of Dr. Pandey's son is **(SSC CGL 1st Sit. 2016)**
(a) 4 years (b) 5 years
(c) 6 years (d) 8 years

134. Mona is 6 years younger to her husband and he is 5 times as old as his daughter Rina. If Rina was 5 years old 3 years back, what is the present age of Mona? **(SSC SI 2016)**
(a) 34 (b) 35
(c) 40 (d) 30

135. If $678 = 83, 476 = 75$ and $567 = 80$, what is $369 = ?$ **(SSC SI 2016)**
(a) 18 (b) 40
(c) 72 (d) 99

136. In a peculiar mathematical operation, plus means multiplication, minus means plus, divided means minus and multiplication means sum of digits of two numbers. Follow these rules and solve the following example. **(SSC SI 2016)**
$(6 \times 7) - (8 \times 9) - (10 \times 11) = ?$
(a) 04 (b) 51
(c) 224 (d) 33

137. Rakhi got engaged 10 years ago. Rakhi's present age is 5/3 of her age at the time of engagement. If the present age of Rakhi's mother is twice that of present age of Rakhi, then what was her mother's age (in years) at the time of her engagement. **(SSC CGL 2017)**
(a) 50 (b) 40
(c) 30 (d) 60

138. In the following question, correct the equation by interchanging two signs. **(SSC CGL 2017)**
$9 \times 3 + 8 \div 4 - 7 = 28$
(a) × and – (b) + and –
(c) ÷ and + (d) × and ÷

139. If $4 * 5 \% 3 = 8000$ and $2 * 3 \% 2 = 36$, then $4 * 3 \% 3 = ?$ **(SSC CGL 2017)**
(a) 432 (b) 1728
(c) 36 (d) 144

140. Nine years later, age of B will be equal to the present age of A. Sum of A's age 3 years later and B's age 4 years ago is 76. If C is half of the present age of B, then what will be C's age (in years) after 10 years? **(SSC CGL 2017)**
(a) 32 (b) 36
(c) 27 (d) 31

141. In the following question, correct the equation by interchanging two signs. **(SSC CGL 2017)**
$4 \times 3 - 6 \div 2 + 7 = 8$
(a) – and + (b) × and –
(c) ÷ and × (d) × and +

142. If $3 \# 4 \% 8 = 6$ and $9 \% 4 \# 3 = 12$, then $12 \% 6 \# 24 = ?$ **(SSC CGL 2017)**
(a) 4 (b) 3
(c) 5 (d) 6

143. In the following question, by using which mathematical operator will the expression become correct?
$18 ? 6 ? 9 ? 27$ **(SSC CGL 2017)**
(a) ×, ÷ and = (b) ÷ , × and =
(c) ×, + and = (d) +, – and =

144. If 18 (9) 3 and 36 (30) 5, then what is the value of A in 19 (A) 18? **(SSC CGL 2017)**
(a) 33 (b) 57
(c) 75 (d) 96

145. The ratio of present ages of P and Q is 5 : 8. Three years later their ages will be in ratio 8 : 11. What is the present age (in years) of Q? **(SSC CGL 2017)**
(a) 5 (b) 11
(c) 14 (d) 8

146. If "P"denotes "multiplied by", "R"denotes "subtracted from", "S" denotes "added to " and "Q" denotes "divided by", "then which of the following equation is true? **(SSC CGL 2017)**
(a) 18 R 60 Q 15 S 2 = 8 (b) 15 S 16 Q 2 P 4 = 47
(c) 3 P 5 R 18 Q 3 = 6 (d) 15 S 28 Q 4 P 2 = 27

147. If $4 * 7 * 2 = 361$ and $5 * 9 * 1 = 480$, then $2 * 1 * 3 = ?$ **(SSC CGL 2017)**
(a) 312 (b) 324
(c) 210 (d) 102

148. If "+" means "minus", "×" means "divided by", " ÷ " means "plus" and "–" means "multiplied by", then
$126 \times 14 + 7 - 3 \div 2 = ?$ **(SSC CHSL 2017)**
(a) – 10 (b) – 12
(c) – 17 (d) – 41

149. Some equations are solved on the basis of certain system. Find out the correct answer for the unsolved equation on that basis. **(SSC MTS 2017)**
If $12 \times 9 = 810$ and $15 \times 9 = 513$ then $13 \times 8 = ?$
(a) 104 (b) 410
(c) 411 (d) 401

150. The total age of a mother and her daughter is 60 years. The difference between their ages is 30 years. Find out the age of mother. **(SSC MTS 2017)**
(a) 40 years (b) 55 years
(c) 45 years (d) 50 years

151. If P denotes ' ÷ ', Q denotes '×', R denotes '+' and S denotes '– ', then 18Q12P4R5S6 is equal to: **(SSC MTS 2017)**
(a) 65 (b) 36 (c) 53 (d) 34

152. In the following question, by using which mathematical operators will the expression become correct?
14 ? 2 ? 4 ? 6 ? 4 **(SSC Sub. Ins. 2017)**
(a) ×, ÷, > and × (b) ÷, ×, > and ×
(c) ÷, +, = and × (d) ÷, +, > and ×

153. In the following question, correct the equation by interchanging two signs. **(SSC Sub. Ins. 2017)**
43 + 9 – 6 ÷ 3 × 8 = 50
(a) ÷ and × (b) + and ÷
(c) – and + (d) – and ×

154. If 4 * 9 % 2 =47 and 9 * 0 % 6 = 84, then 5 * 3 % 7 = ? **(SSC Sub. Ins. 2017)**
(a) 38 (b) 51 (c) 42 (d) 46

155. If 1/4/3 = 254 and 3/6/8 = 479, then 5/2/7 = ? **(SSC Sub. Ins. 2017)**
(a) 416 (b) 461 (c) 368 (d) 638

156. If 85 × 5 – 3 = 20 and 18 × 2 –1 = 10, then 100 × 20 – 5 =? **(SSC Stenographer 2017)**
(a) 15 (b) 20 (c) 10 (d) 13

157. By interchanging which two signs the equation will be correct?
25 + 18 ÷ 2 – 4 = 20 **(SSC Stenographer 2017)**
(a) + and ÷ (b) ÷ and –
(c) + and – (d) None of these

158. Present ages of A and B are in ratio 3 : 5, 7 years later B's age will be twice the age of C. If C celebrated his 10th birthday 4 years ago, then what is the present age (in years) of A? **(SSC Stenographer 2017)**
(a) 14 (b) 21 (c) 28 (d) 42

159. Nisha and Deepak are a married couple and have a daughter named Tanya. Currently, Deepak is 5 years older than Nisha and Nisha is thrice the age of Tanya. If Tanya is 10 years old, what was her father's age at the time of his daughter's birth? **(SSC CGL 2018)**
(a) 35 years (b) 25 years
(c) 30 years (d) 20 years

160. Which two signs should be interchanged in the following equation to make it correct? **(SSC CGL 2018)**
8 × 2 + 5 – 16 ÷ 4 = 14
(a) × and – (b) × and +
(c) ÷ and × (d) ÷ and +

161. The sum of the current ages of Shipra and Malini is 65 years. After 5 years, Shipra's age will be 15 years more than Malini's age. What is Malini's current age? **(SSC CGL 2018)**
(a) 25 years (b) 30 years
(c) 15 years (d) 20 years

162. Which two signs should be interchanged to make the following equation correct? **(SSC CGL 2018)**
5 + 16 – 4 × 14 ÷ 2 = 59
(a) × and + (b) ÷ and ×
(c) + and – (d) ÷ and –

163. Which two signs should be interchanged in the following equation to make it correct? **(SSC CHSL 2018)**
15 + 15 – 2 × 10 ÷ 35 = 16
(a) + and – (b) × and ÷
(c) × and – (d) + and ÷

164. Which two signs should be interchanged to make the following equation correct? **(SSC Sub. Ins. 2018)**
18 + 12 × 8 – 6 ÷ 3 = 9
(a) + and × (b) ÷ and +
(c) – and × (d) × and ÷

165. Which two numbers should be interchanged to make the given equation correct? **(SSC Sub. Ins. 2018)**
9 + 4 ÷ 2 – 6 × 3 = 4 ÷ 3 × 6 – 9 + 1
(a) 6 and 4 (b) 4 and 9
(c) 4 and 2 (d) 6 and 3

166. Which of the following interchanges of signs and numbers would make the given equation correct? **(SSC Sub. Ins. 2018)**
12 ÷ 4 + 2 – 6 × 3 = 3 ÷ 12 + 6 × 2 – 4
(a) × and ÷, 4 and 6 (b) ÷ and +, 6 and 4
(c) × and –, 4 and 6 (d) – and +, 6 and 4

167. If 'A' is replaced by '+'; if 'B' is replaced by '–'; 'C' is replaced by '÷'; and 'D' replaced by '×', then find the value of the following equation. **(SSC Stenographer 2018)**
20A15C3D8B9
(a) 65 (b) 51 (c) 55 (d) 53

168. Find out the two signs to be interchanged for making following equation correct: **(SSC Stenographer 2018)**
25 + 5 ′ 7 – 12 , 3 = 26
(a) + and – (b) + and ×
(c) + and ÷ (d) – and ÷

169. Find out the two signs to be interchanged for making following equation correct. **(SSC Stenographer 2018)**
5 + 3 × 4 – 12 ÷ 2 = –1
(a) + and – (b) + and ×
(c) + and ÷ (d) × and ÷

170. If 'A' is replaced by '+'; if 'B' is replaced by '–'; 'C' is replaced by '÷'; and 'D' replaced by '×', find the value of the following equation. **(SSC Stenographer 2018)**
51C17D15A22B34
(a) 45 (b) 55 (c) 33 (d) 65

171. Which two numbers should be interchanged to make the given equation correct? **(SSC CGL 2019-20)**
9 + 7 × 5 – 18 ÷ 2 = 3 × 4 – 10 + 45 ÷ 5
(a) 7 and 4 (b) 9 and 3
(c) 18 and 45 (d) 2 and 5

172. The ratio of the present ages of Asha and Lata is 5 : 6. If the difference between their ages is 6 years, the what will be Lata's age will be after 5 years? **(SSC CGL 2019-20)**
(a) 40 (b) 35 (c) 41 (d) 45

173. In the following equations, if '+' is interchanged with '–' and '6' is interchanged with '7', then which equation would be correct? **(SSC CGL 2019-20)**
(a) 76 – 75 + 77 = 56 (b) 62 – 67 + 76 = 83
(c) 67 – 76 + 43 = 100 (d) 78 – 68 + 66 = 59

174. Which two signs need to be interchanged to make the following equation correct?
73 – 13 × 42 ÷ 14 + 56 = 56 **(SSC MTS 2019-20)**
(a) + and × (b) × and ÷
(c) – and + (d) – and ×

175. If the two signs, '+ and ÷' are interchanged, which of the following equations will be correct? **(SSC MTS 2019-20)**
(a) 16 ÷ 9 + 4 × 8 = 34 (b) 16 ÷ 21 + 13 × 26 = 56
(c) 11 + 13 × 4 ÷ 2 = 37 (d) 13 × 9 + 16 ÷ 2 = 125

176. If '+' means 'divided by', '–' means 'add', '×' means 'minus' and '÷' means 'multiplied by', what will be the value of the following expression?
$[(32 \times 24) - (4 \div 3)] + (3 - 2)] \div 3$ **(SSC CHSL 2019-20)**
(a) 6 (b) 8 (c) 10 (d) 12

177. There are 6 boys in a class of 11 students. A student is chosen from the class at random to be made the class monitor. What is the probability that the class monitor is a girl? **(SSC CHSL 2019-20)**
(a) $\frac{5}{11}$ (b) 1 (c) $\frac{6}{11}$ (d) $\frac{7}{11}$

178. In a training camp, three types of games hockey, cricket and badminton were taught. 14% of the total students received cricket training. 22% of the remaining students received training for hockey. Half of the remaining students received training for badminton. What percentage of students did NOT receive training in any of the three games? **(SSC CGL 2020-21)**
(a) 24.52% (b) 32.56%
(c) 33.54% (d) 67.52%

179. Select the correct combination of mathematical signs that can sequentially replace the * signs and make the equation correct. **(SSC CGL 2020-21)**
40 * 15 * 3 * 72 * 9 = 77 **(SSC CHSL 2020-21)**
(a) +, ×, ÷, –, = (b) +, ÷, –, ×, ==
(c) ×, ÷, +, –, = (d) +, ×, –, ÷, =

181. In a class of 68 students, 34 students participated only in Debate and 8 students participated in both Quiz and Debate. If every student of the class has participated in at least one of these two competitions, how many students participated in Quiz? **(SSC CHSL 2020-21)**
(a) 22 (b) 34 (c) 30 (d) 26

182. Which two signs should be interchanged to make the given equation correct? **(SSC MTS 2020-21)**
$18 \div 9 + 12 \times 4 - 8 = 15$
(a) × and – (b) ÷ and ×
(c) – and ÷ (d) + and –

183. If the signs – and ÷ are interchanged, then which of the following eqations would be correct? **(SSC MTS 2020-21)**
(a) $12 \div 3 + 9 - 9 = 4$ (b) $9 \div 9 - 9 + 9 = 9$
(c) $12 + 4 - 4 \div 2 = 3$ (d) $6 \div 3 + 12 - 6 = 5$

184. Which two signs and two numbers should be interchanged in the following equation to make it correct?
$35 + 15 - 4 \times 45 \div 5 = 98$ **(SSC Stenographer 2020-21)**
(a) 35 and 45; + and – (b) 15 and 5; × and +
(c) 35 and 45; × and – (d) 15 and 35: × and ÷

185. If 'A' denotes 'addition', 'B' denotes 'multiplication', 'C' denotes 'subtraction', and 'D' denotes 'division', then what will be the value of following expression?
43 A 22 C 15 B 4 A 72 D (10 C 2) = ? **(SSC Stenographer 2020-21)**
(a) 44 (b) 18 (c) 14 (d) 32

186. Select the correct combination of mathematical signs to sequentially replace the * signs from left to Right to balance the given equation?
44 * 32 * 8 * 16 * 3 * 0 **(SSC Stenographer 2020-21)**
(a) +, ×, –, ÷, = (b) ×, +, –, ÷, =
(c) +, –, ×, ÷, = (d) +, ÷, –, ×, =

187. If Z = Y > R + M and G > H = Z = Q, then which of the following options is NOT correct? **(SSC Stenographer 2020-21)**
(a) H = Y (b) G > Q
(c) R > Z (d) Q > R

188. The average income of six friends A, B, C, D, E and F is ` 6,500. The total income of B, D, E and F is ` 25,000. If A's income is ` 4,000 less than C's income, then what is the income of C? **(SSC Stenographer 2020-21)**
(a) 256 (b) 289 (c) 225 (d) 324

190. If 'A' denotes 'addition'. 'B' denotes 'multiplication'. 'C' denotes 'subtraction', and 'D' denotes 'division', then what will be the value of the following expression?
35 B 2 A 5 B (40 C 37) A (8 B 4) D 16 C 14 = ? **(SSC Sub-Inspector 2020-21)**
(a) 66 (b) 54 (c) 73 (d) 56

191. Which two signs should be interchanged to make the given equation correct? **(SSC Sub-Inspector 2020-21)**
$25 - 5 \times 50 \div 10 + 35 = 155$
(a) × and ÷ (b) × and +
(c) × and – (d) + and –

192. Select the correct combination of mathematical signs that can sequentially replace the * signs from left to right to balance the following equation. **(SSC Sub-Inspector 2020-21)**
31 * 2 * 60 * 30 * 15 * 49
(a) ×, ÷, +, –, = (b) ×, –, +, ÷, =
(c) –, ÷, +, ×, = (d) ×, +, ÷, –, =

# Hints & Solutions

1. (d) $(12+6)\times 18=36 \Rightarrow (18\div 6)\times 12=36$

$\Rightarrow 3\times 12=\boxed{36}$

2. (a) As, $6\times 5=30$

$30\times 3+1=91$

$8\times 7=56$

$56\times 3+1=169$

$10\times 7=70$

$70\times 3+1=211$

Similarly,

$11\times 10=110$

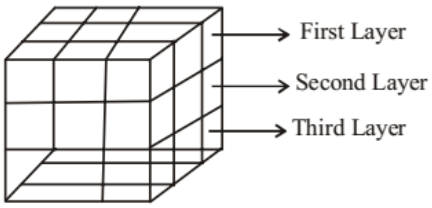
$110\times 3+1=\boxed{331}$

3. (b) Option (b)

$24=4\times 5+4$

$\Rightarrow 24=20+4$

4. (c)




4 cubes each of the first second and third layers will have paint on two sides only.

Therefore, total number of cubes having paint on two sides.

$=4\times 3=\boxed{12}$

5. (b) Suppose the present age of Ashok is x years and that of his mother is y years.

5 years ago

$3(x-5)=(y-5)$

$\Rightarrow 3x-15=y-5$

$\Rightarrow 3x-y=10$ ...(i)

5 years hence,

$2(x+5)=(y+5)$

$\Rightarrow 2x+10=y+5$

$\Rightarrow 2x-y=-5$ ...(ii)

From equations (i) and (ii)

$x=15$ years

6. (b) Suppose the number of women boarded the bus at Delhi is x.

Therefore, the number of men $=2x$

According to question,

$2x-10=x+5$

$\Rightarrow 2x-x=10+5$

$\therefore x=15$

Total number of passengers boarded the bus initially

$=3x$

$=3\times 15=45$

7. (b) Suppose there were x passengers initially

Number of passengers after first stop $=\frac{x}{2}+35$

Number of passengers after second stop

$=\frac{4}{5}\left(\frac{x}{2}+35\right)+40=80$

$\Rightarrow \frac{x}{2}+35=\frac{(80-40)}{4}\times 5$

$\Rightarrow \frac{x}{2}=50-35=15$

$\therefore x=30$

8. (d) Suppose the present age of son is x years.

Therefore, present age of the father $=4x$ years

According to question,

$x+3=15$

$\therefore x=15-3=12$ years

The present age of father

$=4x=4\times 12=48$ years

$\therefore$ The present age of man's wife

$=48-3=45$ years

9. (d) As, $\frac{8}{4}=2; 2+1=3$

$\frac{6}{3}=2; 2+3=5$

$\frac{4}{2}=2; 2+5=7$

Similary, $\frac{2}{1}=2+7=9$

10. (a) As, $A=51\times 14=714$

$\bar{B}=6\bar{1}\times 1\bar{5}=9\bar{1}\bar{5}$

$C=71\times 16=1136$

$\therefore D=81\times 17=\boxed{1377}$

11. (b) $5=15\div 3$

12. (a) $25\times 2-6=4\times 11+0$

$\Rightarrow 50-6=44+0, \Rightarrow 44=44$

13. (d) $5+4=9$ and $9\times 2=18$

$6+3=9$ and $9\times 3=27$

$12+4=16$ and ?

$=\frac{96}{16}=\boxed{6}$

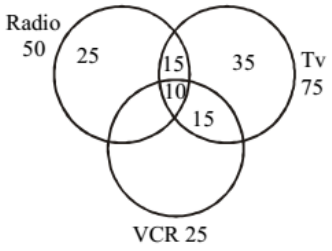
14. (c) Suppose his present age is x years.

According to question

$\frac{x}{4}+\frac{x}{5}+\frac{x}{3}=x-13$

$$\Rightarrow \frac{15x+12x+20x}{60} = x-13$$
$$\Rightarrow 47x = 60x - 780$$
$$\Rightarrow 60x - 47x = 780$$
$$\Rightarrow 13x = 780$$
$$\therefore x = \frac{780}{13} = 60 \text{ years}$$

15. (b) According to question,
Total number of families = 100




So, only 35 families have only TVs.

16. (c) Suppose total number of workers in the office = x

$$\text{Number of woman workers} = \frac{x}{3}$$

$\therefore$ Number of man workers

$$= x - \frac{x}{3} = \frac{3x-x}{3} = \frac{2x}{3}$$

$$\text{Number of married woman workers} = \frac{x}{3} \times \frac{1}{2} = \frac{x}{6}$$

Number of married woman workers who have children

$$= \frac{x}{6} \times \frac{1}{3} = \frac{x}{18}$$

$$\text{Number of married man workers} = \frac{2x}{3} \times \frac{3}{4} = \frac{x}{2}$$

Number of married man workers who have children =

$$\frac{x}{2} \times \frac{2}{3} = \frac{x}{3}$$

Number of workers who have children

$$= \frac{x}{3} + \frac{x}{18} = \frac{6x+x}{18} = \frac{7x}{18}$$

Number of workers without children

$$= x - \frac{7x}{18} = \frac{18x-7x}{18} = \frac{11}{18}x$$

17. (a) $30 - 6 + 5 \times 4 \div 2 = 27$
$\Rightarrow 30 \div 6 \times 5 + 4 - 2 = 27$
$\Rightarrow 25 + 4 - 2 \Rightarrow 27 = 27$, option (a) is correct
$30 + 6 - 5 \div 4 \times 2 = 30$
$\Rightarrow 30 \times 6 \div 5 - 4 + 2 = 30$
$\Rightarrow 36 - 4 + 2 \neq 30$, option (b) is wrong
$30 \times 6 \div 5 - 4 + 2 = 32$
$\Rightarrow 30 + 6 - 5 \div 4 \times 2 \neq 32$, option (c) is wrong
$\Rightarrow 30 \div 6 \times 5 + 4 - 2 = 40$
$\Rightarrow 30 - 6 + 5 \times 4 \div 2 \neq 40$
option (d) is wrong.

18. (d) $9 + 7 = 16$; $9 - 7 = 2$
$16 \times 2 = 32$
$13 + 7 = 20$; $13 - 7 = 6$
$20 \times 6 = 120$
$17 + 9 = 26$; $17 - 9 = 8$
$26 \times 8 = 208$
$19 + 11 = 30$; $19 - 11 = 8$
$30 \times 8 = \boxed{240}$

19. (c) As, $3.5 + 0.2 = 3.7$
$3.7 + 0.4 = 4.1$
$4.1 + 0.8 = 4.9$
$4.9 + 1.6 = 6.5$
$6.5 + 3.2 = \boxed{9.7}$

20. (c) The pattern is as follows :
$4 + 4 = 8$
$8 + 8 = 16$
$16 + 12 = \boxed{28}$
$28 + 16 = 44$
$44 + 20 = 64$

21. (a) Age of Shan = 55 years
Age of Sathian = 55 – 5 = 50 years
Age of Balan = 50 – 6 = 44 years
Age of Devan = 44 – 7 = 37 years
Difference between the ages of Shan and Devan = 55 – 37 = 18 years.

22. (b) $\Rightarrow$ 20% families have own a car.

$$20\% \text{ of } 80 = \frac{20}{100} \times 80 = 16$$

50% of remaining families have own a motorcycle each

$$= (80-16) \times \frac{50}{100} = 32$$

The families which do not own any vehicle
$= 80 - (32 + 16) = 80 - 48 = 32$

23. (c) $9 \times 4 + 1 \times 6 = 36 + 6 = 42$
$8 \times 9 + 2 \times 3 = 72 + 6 = 78$
Similarly

$6 \times 3 + 4 \times 5 = 18 + 20 = \boxed{38}$

24. (a) $a \nabla b \nabla c$
$\Rightarrow a < b < c$
Option (a)
$a \Delta b \phi c \Rightarrow a > b \leq c$ or,
$a < b \leq c$
Option (b)

$a \phi b + c \Rightarrow a \le b = c$

Option (c)

$a\ 0\ b + c \Rightarrow a > b = c$

Option (d)

$a\ 0\ b \times c \Rightarrow a > b \ge c$

25. (d) $5-4=1; 4-3=1$

$1+1=2$

$6-0=6; 5-1=4$

$6+4=10$

$6-2=4; 7-2=5$

$4+5=$ $\boxed{9}$

26. (a)

| | |
|---|---|
| L $\Rightarrow$ $\times$ | M $\Rightarrow$ $\div$ |
| P $\Rightarrow$ + | Q $\Rightarrow$ $-$ |

16 P 24 M 8 Q 6 M 2 L 3 = ?

$\Rightarrow ? = 16 + 24 \div 8 - 6 \div 2 \times 3$

$\Rightarrow ? = 16 + 3 - 3 \times 3$

$\Rightarrow ? = 16 + 3 - 9 =$ $\boxed{10}$

27. (a) $16 \Rightarrow (2+2)^2 = (4)^2$

$9 \Rightarrow (3+0)^2 = (3)^2$

$81 \Rightarrow (1+8)^2 = (9)^2$

Similarly, $64 \Rightarrow (4+4)^2 = (8)^2$

28. (d) Volume of sphere $= \frac{4}{3}\pi r^3$

Volume of hemisphere $= \frac{2}{3}\pi r^3$

Now,

$\frac{4}{3}\pi r^3 = \frac{2}{3}\pi r^3$

or, $\frac{4}{3}r^3 = \frac{2}{3}\left(3\sqrt[3]{2}\right)^3$

or, $r^3 = \frac{2}{3} \times \frac{3}{4} \times 27 \times 2$

$\therefore r = 3$ cm

29. (c) $6+4=10; 1+4=5; 10-5=5$

$9+2=11; 3+1=4; 11-4=7$

$2+6=8; 1+1=2; 8-2=6$

$5+6=11; 2+2=4, 11-4=$ $\boxed{7}$

30. (b)

| | |
|---|---|
| P $\Rightarrow$ $\div$ | Q $\Rightarrow$ $\times$ |
| R $\Rightarrow$ + | S $\Rightarrow$ $-$ |

18 Q 12 P 4 R 5 S 6 = ?

$\Rightarrow ? = 18 \times 12 \div 4 + 5 - 6$

$\Rightarrow ? = 18 \times 3 + 5 - 6$

$\Rightarrow ? = 54 + 5 - 6 =$ $\boxed{53}$

31. (d) Here, $25 \div 5 = 5; 5 \times 3 = 15$

$30 \div 6 = 5; 5 \times 4 = 20$

$35 \div 7 = 5; 5 \times 5 =$ $\boxed{25}$

32. (a) As, $3+3+4+5=15 \Rightarrow 1+5=6$

and, $6 \times 5 = 30$

$9+0+2+6=17 \Rightarrow 1+7=8$

and, $8 \times 5 = 40$

Similarly,

$3+0+4+5=12 \Rightarrow 1+2=3$

and, $3 \times 5 =$ $\boxed{15}$

33. (d) Age of Manager = New Average Age + (No. of Subordinates × Change in Average)

$= 31 + (25 \times 1) = 56$ years

34. (b) Suppose, in the beginning the number of students in Class B = x

Therefore, the number of Students in Class A = 2x

Now,

$2x + 20 + x + 30 = 140$

$\Rightarrow 3x = 140 - 50$

$\therefore x = \frac{90}{3} = 30$

Number of Students in Class A

$= 2x = 2 \times 30 = 60$

35. (c) Take LCM of 8, 12, 15 and 20

| | | | | |
|---|---|---|---|---|
| 2 | 8, | 12, | 15, | 20 |
| 2 | 4, | 6, | 15, | 10 |
| 3 | 2, | 3, | 15, | 5 |
| 5 | 2, | 1, | 5, | 5 |
| | 2, | 1, | 1, | 1 |

$\therefore$ LCM $= 2 \times 2 \times 3 \times 5 \times 2 = 120$

Since the remainder to be left is 2, the number can be given by 120K + 2, where k is a positive integer

$120 \times 1 + 2 = 122 (K = 1)$

36. (c) $(3+8) \times (1+5)$

$\Rightarrow 11 \times 6 = 66$

$(2+9) \times (3+6)$

$\Rightarrow 11 \times 9 = 99$

Similarly,

$(8+2) \times (4+4)$

$\Rightarrow 10 \times 8 =$ $\boxed{80}$

37. (d)

| | |
|---|---|
| + $\Rightarrow$ $\div$ | $-$ $\Rightarrow$ $\times$ |
| $\times$ $\Rightarrow$ + | $\div$ $\Rightarrow$ $-$ |

$45 + 9 - 3 \times 15 \div 2$

$\Rightarrow ? = 45 \div 9 \times 3 + 15 - 2$

$\Rightarrow ? = 5 \times 3 + 15 - 2$

$\Rightarrow ? = 30 - 2 =$ $\boxed{28}$

38. (d) $\boxed{78} + 14 = 92$
$92 + 21 = 113$
$113 + 28 = 141$
$141 + 35 = 176$

39. (d) Let father's age is x yr.

Son's age is $\frac{x}{4}$ yr.

$x + \frac{x}{4} = 35 \Rightarrow x = 28$ yr.

Father's age after 8 year is 36 years.

40. (c) $90 \div 18 \times 6 + 30 - 4 = 56$

41. (d) As, $73 + 46 = 42$
$7 - 3 = 4, 4 + 6 = 10$
Add $4 + 10 = 14$
$14 \times 3 = 42$
Similarly, $6 - 2 = 4, \quad 8 + 0 = 8$
$4 + 8 = 12$
$12 \times 3 = 36$

42. (a) Series

447 458 489 540 $\boxed{611}$
+11 +31 +51 +71

43. (c) $D = S \times T$

In first case, $20 = S \times T \Rightarrow T = \frac{20}{S}$ ... (1)

In second case, $30 = (S + 20) \times T \Rightarrow T = \frac{30}{S+20}$ ... (2)

From equation (1) & (2)

$\frac{20}{S} = \frac{30}{S+20} \Rightarrow 20S + 400 = 30S \Rightarrow 10S = 400$

$\Rightarrow S = 40$ mph

$\therefore T = \frac{20}{S} \Rightarrow \frac{20}{40} = \frac{1}{2}$ hr or 30 minutes

44. (b) $1 \times 8 \times 5 \times 3 \times 7 = 73581$
In this all the multiple are written in reverse direction to get the number
$\therefore 9 \times 4 \times 3 \times 2 \times 8 = 82349$

45. (b) $\left.\begin{matrix} 6-4=2 \\ 5-3=2 \end{matrix}\right]$ Addition $= 4$

$\left.\begin{matrix} 8-6=2 \\ 4-2=2 \end{matrix}\right]$ Addition $= 4$

Similarly, $\left.\begin{matrix} 8-3=5 \\ 7-2=5 \end{matrix}\right]$ Addition $= 10$

46. (b) The expression is :
30K 2 Q 3 J 6 T 5
$\Rightarrow 30 \div 2 + 3 \times 6 - 5$
$\Rightarrow 15 + 3 \times 6 - 5 \Rightarrow 15 + 18 - 5$
$\Rightarrow 33 - 5 = 28$

47. (b) The expression is :
8 I 12 He 16 You 2 we 10
$\Rightarrow 8 \times 12 + 16 \div 2 - 10$
$\Rightarrow 8 \times 12 + 8 - 10$
$\Rightarrow 104 - 10 = 94$

48. (a) Suppose the present age of Arun is $4x$ years and that of Deepak is $3x$ years.
6 years hence,
Arun's age $= 4x + 6 = 26$
$\Rightarrow 4x = 26 - 6$

$x = \frac{20}{4} = 5$

$\therefore$ Present age of Deepak $= 3x = 15$ years

49. (d) $235 \Rightarrow (2)^2 + (3)^2 + (5)^2 = 38$

$452 \Rightarrow (4)^2 + (5)^2 + (2)^2 = 45$

$345 \Rightarrow (3)^2 + (4)^2 + (5)^2 = \boxed{50}$

50. (b) $\overset{\wedge}{2} \times \overset{\wedge}{3}$
$\times 2 \downarrow \quad \times 3 \downarrow$
$4 \quad 9$

$5 \times 6$
$\times 5 \downarrow \quad \times 6 \downarrow$
$25 \quad 36$

$1 \times 9$
$\times 1 \downarrow \quad \times 9 \downarrow$
$1 \quad 81$

$4 \times 7$
$\times 4 \downarrow \quad \times 7 \downarrow$
$16 \quad 49$

51. (d)

| $\times \Rightarrow +$ | $\div \Rightarrow -$ |
|---|---|
| $+ \Rightarrow \div$ | $- \Rightarrow \times$ |

$14 \times 4 \div 70 + 10 - 2 = ?$
$\Rightarrow ? = 14 + 4 - 70 \div 10 \times 2$
$\Rightarrow ? = 14 + 4 - 7 \times 2$
$\Rightarrow ? = 18 - 14 = \boxed{4}$

52. (a) 5 * 5 * 5 * 3 * 10
$\Rightarrow 5 \times 5 + 5 = 3 \times 10$
$\Rightarrow 30 = 30$

53. (b) $8 + 2 \div 3 - 4 \times 6$
$\Rightarrow 8 \div 2 - 3 \times 4 + 6$
$\Rightarrow 4 - 12 + 6$
$\Rightarrow -2$

54. (b) $16 - 8 \div 1 = 8$

55. (b)

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| No. of user | 4 | 8 | 16 | 28 | 44 | 64 |
| | | +4 | +8 | +12 | +16 | +20 |

56. (b) $4 \times 2 \times 6 = 1626 = (4^2)26 = 1626$
$3 \times 7 \times 4 = 974 \Rightarrow (3^2)74 = 974$
$\therefore\ 5 \times 6 \times 8 = (5^2)68 = 2568$

57. (a) By checking options
$36 \div 6 \times 3 + 2 = 6 \times 3 + 2$
$\Rightarrow 20 = 20$

58. (a) Son's age = 6 yrs.
Father's age = 30 yrs.
Let 'x' be the yr. after which father will be 4 times as old as his son.
According to question
$30 + x = 4(6 + x) = 30 + x = 24 + 4x$
$\Rightarrow 6 = 3x.$
x = 2.
Hence, require year is 2 yrs.

59. (b) The nearest perfect square less than 2486 is 2401.
$2486 - \boxed{85} = 2401 = 49 \times 49$

60. (c) $(6 + 12) \times 4 \Rightarrow 18 \times 4 = \boxed{72}$

61. (c)

| | | | |
|---|---|---|---|
| $\times \Rightarrow +$ | $<\Leftrightarrow -$ | $+ \Rightarrow \div$ | $> \Rightarrow \times$ |
| $- \Rightarrow =$ | $\div \Rightarrow >$ | $= \Rightarrow <$ | |

form (1)
$3 \times 2 < 4 \div 16 > 2 + 4$
$\Rightarrow 3 + 2 - 4 > 16 \times 2 \div 4$
$\Rightarrow 5 - 4 > \dfrac{16 \times 2}{4} \Rightarrow 1 > 8$ (not possible)
from (2)
$5 > 8 + 4 = 10 < 4 \times 8$
$\Rightarrow 5 \times 8 \div 4 < 10 - 4 + 8$
$\Rightarrow 5 \times 2 < 18 - 4 \Rightarrow 10 < 14$
form (3)
$3 \times 4 > 2 - 9 + 3 < 3$
$\Rightarrow 3 + 4 \times 2 = 9 \div 3 - 3$
$\Rightarrow 3 + 8 \neq 3 - 3$
from (4)
$5 \times 3 < 3 \div 8 + 4 \times 1$
$\Rightarrow 5 + 3 - 3 > 8 \div 4 + 1$
$\Rightarrow 8 - 3 > 2 + 1$
$\Rightarrow 5 > 3$
Both (2) and (4) are correct.

62. (b) $55 + 66 \Rightarrow 5 + 6 = 11$
$11 \times 3 = 33$
$22 + 99 \Rightarrow 2 + 9 = 11$
$11 \times 3 \Rightarrow 33$
Similarly,
$44 + 88 \Rightarrow 4 + 8 = 12$
$12 \times 3 = \boxed{36}$

63. (a) Pipe A can fill a tank completely in 5 hours. On account of a leak at the tank, it takes 5 + 3 = 8 hours to fill the tank. Time taken by the leak to empty the full tank
$= \dfrac{5 \times 8}{8 - 5} = \dfrac{40}{3} = 13$ hours 20 minutes

64. (c)

| | | |
|---|---|---|
| $+ \Rightarrow \times$ | $<\Leftrightarrow \div$ | |
| $- \Rightarrow +$ | $\times \Rightarrow >$ | $\div \Rightarrow -$ |

Option (a)
$20 - 4 \div 4 + 8 < 2 \times 26$
$\Rightarrow 20 + 4 - 4 \times 8 \div 2 > 26$
$\Rightarrow 20 + 4 - 4 \times 4 > 26$
$\Rightarrow 24 - 16 > 26 \Rightarrow 8 > 26$ (not possible)
Option (b)
$20 \times 8 + 15 < 5 \div 9 - 8$
$\Rightarrow 20 > 8 \times 15 \div 5 - 9 + 8$
$\Rightarrow 20 > 8 \times 3 - 9 + 8$
$\Rightarrow 20 > 24 - 9 + 8 \Rightarrow 20 > 23$ (not possible)
Option (c)
$20 < 2 + 10 \div 4 - 6 \times 100$
$\Rightarrow 20 \div 2 \times 10 - 4 + 6 > 100$
$\Rightarrow 10 \times 10 - 4 + 6 > 100$
$\Rightarrow 100 - 4 + 6 > 100$
$\Rightarrow 106 - 4 > 100 \Rightarrow 102 > 100$
Option (d)
$20 < 5 + 25 \div 10 - 2 \times 96$
$\Rightarrow 20 \div 5 \times 25 - 10 + 2 > 96$
$\Rightarrow 4 \times 25 - 10 + 2 > 96$
$\Rightarrow 100 - 10 + 2 > 96$
$\Rightarrow 102 - 10 > 96 \Rightarrow 92 > 96$ (not possible)

65. (b) $8 \times 20 \div 3 + 9 - 5 = 38$
$\Rightarrow 8 \times 20 \div 5 + 9 - 3 = 38$
$\Rightarrow 8 \times 4 + 9 - 3 = 38$
$\Rightarrow 32 + 9 - 3 = 38$

66. (a) $33 \times 11 \div 3 - 6 = 115$
$\Rightarrow \left(\dfrac{363}{3}\right) - 6 = 115$
$\Rightarrow 121 - 6 = 115$

67. (d) $15 * 24 * 3 * 6 * 17$
$\Rightarrow 15 + 24 \div 3 - 6 = 17$
$\Rightarrow 15 + 8 - 6 = 17$

68. (a) Solve by options, we can check all the options one by one.
$25 \div 5 \times 20 + 27 - 7 \Rightarrow 5 \times 20 + 27 - 7 \Rightarrow 100 + 27 - 7$
$120 = 120$

69. (a) $A\ \theta\ B \times C$
$A\ \theta\ B\,;\, B \times C$
$\therefore\ A \geq B\,;\, B > C$
Hence, option (a) implies the given equation.

70. (c) $(6 + 3) - (3 + 0) = 6 \times 5 = 30$
$(7 + 2) - (1 + 0) = 8 \times 5 = 40$
$\therefore\ (8 + 1) - (6 + 0) = 3 \times 5 = 15$

71. (b) Suppose the age of son is x years
Therefore, age of father = 10x years
According to question
$\dfrac{10x + x}{2} = 22 \Rightarrow 11x = 44 \ \therefore\ x = \dfrac{44}{11} = 4$ years
Age of son = 4 years.
Age of father = $10 \times 4 = 40$ years

72. (c) $L \Rightarrow 12; 12 \times 2 = 24$
$O \Rightarrow 15; 15 \times 2 = 30$
$N \Rightarrow 14; 14 \times 2 = 28$
$D \Rightarrow 04; 04 \times 2 = 08$
$O \Rightarrow 15; 15 \times 2 = 30$
$N \Rightarrow 14; 14 \times 2 = 28$
Therefore,
$F \Rightarrow 06; 06 \times 2 = 12$
$R \Rightarrow 18; 18 \times 2 = 36$
$A \Rightarrow 01; 01 \times 2 = 02$
$N \Rightarrow 14; 14 \times 2 = 28$
$C \Rightarrow 03; 03 \times 2 = 06$
$E \Rightarrow 05; 05 \times 2 = 10$

73. (a) $29 \times 48$
$\Rightarrow 2 \times 9 \times 4 \times 8 = 576$
$35 \times 16$
$\Rightarrow 3 \times 5 \times 1 \times 6 = 90$
$22 \times 46$
$\Rightarrow 2 \times 2 \times 4 \times 6 = 96$
Therefore,
$42 \times 17$
$\Rightarrow 4 \times 2 \times 1 \times 7 =$ 56

74. (c)

| | |
|---|---|
| P ⇒ × | T ⇒ – |
| M ⇒ + | B ⇒ ÷ |

12 P 6 M 15 T 16 B 4 = ?
$\Rightarrow ? = 12 \times 6 + 15 - 16 \div 4$
$\Rightarrow ? = 72 + 15 - 4 =$ 83

75. (b)

| | | |
|---|---|---|
| + ⇒ > | ϕ ⇒ ≤ | – ⇒ ≥ |
| × ⇒ = | \| ⇒ < | L ⇒ ≠ |

$A | B \times C \Rightarrow A < B = C$
$B + C | A \Rightarrow B > C < A$ Option (a)
$C - B + A \Rightarrow C \geq B > A$ Option (b)
$B | A | C \Rightarrow B < A < C$ Option (c)
$A \phi B | C \Rightarrow A \leq B < C$ Option (d)

76. (c)

| | | |
|---|---|---|
| A ⇒ ≤ | B ⇒ = | C ⇒ < |
| D ⇒ ≥ | E ⇒ ≠ | F ⇒ > |

2 M B N

$\Rightarrow 2M = N \Rightarrow M = \frac{N}{2}$

2 N A 3 K
$\Rightarrow 2N \leq 3K \Rightarrow 4M \leq 3K$
Option (a)
2 M D 3K
$\Rightarrow 2M \geq 3K$ : Not True
Option (b)
2 M B 3 K
$\Rightarrow 2M = 3K$ : Not True
Option (c)
2 M C 3 K
$\Rightarrow 2M < 3K$ : True
Option (d)
2 K B 3 N
$\Rightarrow 2K = 3N$ : Not True

77. (b) Let uncle's present age = $x$
Rahim's present age = $y$
$x - y = 30$ ...(i)
After 7 year
$(x + 7) + (y + 7) = 66$
$x + y + 14 = 66$
$x + y = 52$ ...(ii)
combining (i) & (ii) we get
$(x + y = 52) + (x - y = 30)$
$2x = 82$
$x = 41$ so, uncle's age is 41.

78. (b) ⑦ + ⑧ + ②
$17 + 3 = 20$
⑥ + ⑦ + ①
$14 + 3 = 17$
⑧ + ⑧ + ④
$20 + 3 = 23$

79. (c) $5 \times 6 \times 4 = 4\,5\,6$
$3 \times 6 \times 5 = 5\,3\,6$
Similarly,
$4 \times 8 \times 7 = 7\,4\,8$

80. (a) $9 + 7 - 2 \times 3 = 10$
$9 + 7 - 6 = 10$
$16 - 6 = 10$

81. (d) $35 \div 7 \times 5 + 5 - 6$
$= 5 \times 5 + 5 - 6$
$25 + 5 - 6$
$30 - 6 = 24$

82. (a) $A = C - 4$ .....(1)
$B = A + 15$ .....(2)
$C = B - 15$ .....(3)
From (1) and (3)
$A = B - 11 - 4$
$A = B - 15$
A : B : C
B – 15 : B : B – 11
$B - 15 + B + B - 11 = 178$
$3B = 178 + 26 = 204 \Rightarrow B = 68$
$A = 53, C = 57$

83. (c) Let woman has number of 25 p coins = x
Number of 50 p coins = y
Then, value of 25 p coins = ` $\frac{x}{4}$

value of 50 p coins = ` $\frac{y}{2}$

Now, $\frac{x}{4}+\frac{y}{2}=12.75$ ...(1)

and $x+y=40$ ...(2)

On solving question. (1) and (2) $y=11$

Hence, the number of 50 p coins is 11.

84. (d) Let the present age of sunita = x year
Then, the present age of sunita's father
$=4x$ years
After 8 years,
$4x+8=3(x+8)$
$4x+8=3x+24$
$4x-3x=24-8$
$x=16$ years

85. (c) If, $5+7=12 \Rightarrow 21$
$9+4=13 \Rightarrow 31$
Then,
$7+9=16 \Rightarrow 61$

86. (b) If, $532+781=(5+3+2)+(7+8+1)-5$
$=10+16-5$
$=21$
$862+910=(8+6+2)+(9+1+0)-5$
$=16+10-5$
$=21$
Then
$796+355=(7+9+6)+(3+5+5)-5$
$=22+13-5$
$=30$

87. (a) After interchanging sign–
$10\times5\div5-5+5=10\times1-5+5$
$=10-5+5$
$=15-5$
$=10$

88. (a) Rupa = $\frac{\text{Praveen}}{2}$
Praveen = Deepak + 6 as Deepak = 12
So, Praveen = 12 + 6 = 18

Rupa's is age = $\frac{18}{2}=9$ years

89. (a) $18-6+4\times6\div2$
$\Rightarrow 18-6+4\times3$
$\Rightarrow 24$

90. (c)

91. (a) $=27\div3\times6-9+8$
$=9\times6-9+8$
$=54-9+8$
$=53$

92. (b) From the option (b) on putting the signs
$4\times6+2-4+8=30$
$24+2-4+8=30$
$22+8=30$
$30=30$

93. (b) $35\div7+25=15\times2$
$5+25=30$
$30=30$

94. (c) $7\times9\times6\times5$
$-2\downarrow\quad-2\downarrow\quad-2\downarrow\quad-2\downarrow$
$5\times7\times4\times3$
Similarly
$8\times4\times14\times12$
$-2\downarrow\quad-2\downarrow\quad-2\downarrow\quad-2\downarrow$
$6\times2\times12\times10$

95. (b) It takes 15 cm per minute but it comes back 2.5 cm in every 15 cm.
So, $15-2.5=12.5$ cm
as 1m = 100 cm

then, it will take to cover a distance of 1 m = $\frac{100}{12.5}=8$ min.

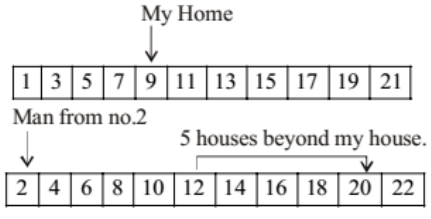
96. (d) Going by options; Box 1 Box 2
[5] : [7]
If 1 cande in box number is placed in box number 2 then
Box 1 Box 2
[4] : [8]
Therefore, Box 2 has twice the number of candles than box 1.
If 1 candle from box 2 is placed in box-1
Then- Box 1 Box 2 Hence, Both boxes have the same
[6] : [6]
numbers of candles.

97. (b) $4+6\times2=16$

98. (*) Going by options:-
(a) $45+3\times6\div2=16$
$54\neq16$
(b) $45+3\div6\times2=16$
$46\neq16$
(c) $45+3\times6-2=16$
$61\neq16$
(d) $45+3+6-2=16$
$52\neq16$
None of option matching, Hence question is wrong.

99. (c) $8\times5+10=2\times25$
$50=50$

100. (b)




Hence, 20 is the number of that house.

101. (b) Govind's age = 48 years
According to question
Prem's age = 48/2 = 24 years
Prem's age seven years before = 24 – 7 = 17 years.

102. (c) By options–
(a) $22 \times 7 + 3 - 9 = 148$
$154 + 3 - 9$
$157 - 9 = 148$ (Correct)
(b) $33 - 5 + 10 \times 20 = 228$
$33 - 5 + 200$
$200 + 33 - 5$
$233 - 5 = 228$ (Correct)
(c) $7 \times 28 + 3 - 52 = 127$
$196 + 3 - 52$
$199 - 52 = 147$ (Incorrect)
(d) $44 + 9 \times 6 - 11 = 87$
$44 + 54 - 11$
$98 - 11 = 87$ (Correct)

103. (a) 5 * 6/2 3 5
8 * 4/2 2 8
6 * 8/2 4 6

104. (c) (a) $12 + 3 \times 4 .= 6 - 8 \times 8$
$12 + 12 = 6 - 64$
By options, $24 = 58$ (Incorrect)
$\because 58 > 24$
(b) $12 \times 3 + 4 = 6 - 8 \times 8$
$36 + 4 = 6 - 64$
$40 = 58$ (Incorrect)
$\because 58 > 40$
(c) $12 \times 3 + 4 = 6 \times 8 - 8$
$36 + 4 = 48 - 8$
$40 = 40$ (Correct)
(d) $12 \times 3 - 4 = 6 \times 8 + 8$
$36 - 4 = 48 + 8$
$32 = 56$ (Incorrect)
$\because 56 > 32$

105. (b) Mani's Age = 60 years
Prabhu's Age = 60/2 = 30 years
Romana's Age = 30/2 = 15 years

106. (a) $(N \times \boxed{L} + M) \div K = 31$
$(11 \times 5 + 7) \div 2 = 31$
$62 \div 2 = 31$

107. (b) First and last digits of each equation have been interchanged.
$2 \times 3 \times 4 = 4\ 3\ 2$
$5 \times 6 \times 7 = 7\ 6\ 5$
$7 \times 8 \times 9 = 9\ 8\ 7$
$2 \times 5 \times 7 = 7\ 5\ 2$

108. (c) Trend in decrease:
$26 \xrightarrow{-1} 25 \xrightarrow{-2} 23 \xrightarrow{-3} 20 \xrightarrow{-4} 16 \xrightarrow{-5} 11 \xrightarrow{-6} (5)$

109. (b) Let 'D' be the distance between A and B and T be the time taken by them
Then,
Distance = Speed × Time
$D = 40 \times \left(T + \frac{15}{60}\right)$ ...(1)
$D = 30 \times \left(T + \frac{24}{60}\right)$ ...(2)
Equating (1) and (2)
$40\left(T + \frac{1}{4}\right) = 30\left(T + \frac{2}{5}\right) \Rightarrow 40\frac{(4T+1)}{4} = 30\left(\frac{5T+2}{5}\right)$
$40T + 10 = 30T + 12$
$T = \frac{2}{10}$ hour
$T = \frac{1}{5}$ hour
Putting 'T' value in equation (1), we get
$D = 40 \times \left(\frac{1}{5} + \frac{1}{4}\right) = \frac{40 \times 9}{20} = 18$ km.
Hence, the distance between the two stations is 18 km.

110. (b) $46 \times 6 \div 4 + 5 - 3 = 46 \times 1.5 + 5 - 3 = 69 + 5 - 3 = 71$

111. (b) $18 \times 6 \div 4 + 2 - 3 = 18 \times 1.5 + 2 - 3 = 27 + 2 - 3 = 26$

112. (d) (A) Virgo is the sixth sign of zodiac.
(B) Volleyball is a team sport in which each team has six players
(C) A highest scoring short of a particular sport is six.

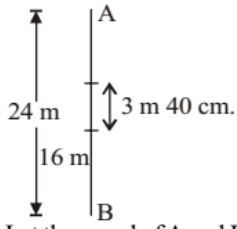
113. (a)

| | | |
|---|---|---|
| $A \Rightarrow \not<$ | $B \Rightarrow \neq$ | $C \Rightarrow \not>$ |
| $D \Rightarrow >$ | $E \Rightarrow <$ | $F \Rightarrow =$ |

Premises :
$4Y = 3x$ and $3x = 6Z$
(a) $2Y = 3Z$ (✓) (b) $4Y \neq 5Z$ (×)
(c) $2Y > 3Z$ (×) (d) $2Y < 3Z$ (×)

114. (c) $16 \div 64 - 8 \times 4 + 2$
$\Rightarrow 16 + 64 \div 8 - 4 \times 2$
$\Rightarrow 16 + 8 - 4 \times 2$
$\Rightarrow 16 + 8 - 8 \Rightarrow 16$

115. (c) Let basic pay of A = ` x
Let basic pay of B = ` y
As per given condition
Total salary = $x + 0.65x = 1.65x$
Total salary of B = $y + 0.80y = 1.8y$
$1.65x = 1.8y$
$\frac{x}{y} = \frac{1.8}{1.65} = \frac{180}{165} = \frac{12}{11}$
So ratio of basic pay = 12:11

116. (a) 

So net height climbed in one day
$= 16 - 3.40$
$= 12.6$ m

117. (a) Let the speed of A and B in first lap = 3x and 2x.
Speed of A and B in second lap = 4x and 7x
Speed of A and B in third lap = 8x and 9x
Total speed of horse A = $8x + 4x + 3x = 15x$
Total speed of horse B = $9x + 7x + 2x = 18x$
Difference between A and B = $18x - 15x = 3x$
So correct answer is (a).

118. (b) $24 \div 6 \times 4 + 9 - 8$
$4 \times 4 + 9 - 8$
$16 + 9 - 8$
$25 - 8 = 17$

119. (c) As, $7 \times 6 \times 4 = 674$, $8 \times 5 \times 3 = 583$
Similarly,
$9 \times 1 \times 2 = 192$

120. (a) (×) sign has been changed by (+) sign.
Therefore, $9 + 8 + 7 = 24$
$4 + 7 + 3 = 14$
$2 + 1 + 9 = 12$

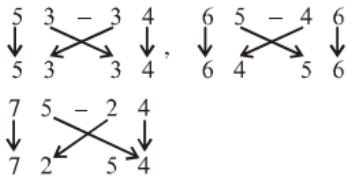
121. (a) $5 + 2 - 12 \times 6 \div 2 = 10$
Can be written in original signs as
$5 \times 2 + 12 \div 6 - 2 = 10 + 2 - 2 = 10$

122. (b) Rewriting the expression 16 Q 12 P6R5S4 with original signs
$16 \times 12 \div 6 + 5 - 4$
$= 16 \times 2 + 5 - 4$
$= 32 + 1 = 33$

123. (c) $72 \times 19 = 23 \Rightarrow (7 \times 2 + 1 \times 9 = 23)$
$13 \times 48 = 35 \Rightarrow (1 \times 3 + 4 \times 8 = 35)$
$16 \times 43 = 18 \Rightarrow (1 \times 6 + 4 \times 3 = 18)$
So, $39 \times 22 = ? \Rightarrow (3 \times 9 + 2 \times 2 = 31)$

124. (c) Writing the expression with actual sign
$64 \div 8 + 32 \times 4 = 8 + 128 = 136$

125. (a) If all the signs are changed as per given in the question only $25 + 10 - \frac{5}{10} \times 3 = 43$ will be satisfied $25 \times 10 \div 5 - 10 + 3 = 43$

126. (d) 


127. (b) $24 + 8/2 - 6 \times 6$
will be written as $\frac{24}{8} - 2 \times 6 + 6 = 3 - 12 + 6 = -3$

128. (a) $\overset{\curvearrowleft}{7 \times 6 \times 8} = 6\,7\,8$
Similarly $\overset{\curvearrowleft}{5 \times 4 \times 6} = 4\,5\,6$

129. (c) Putting $\times = +$, $- = \div$, $\div = -$ and $+ = \times$
Only $16 + 5 - 10 \times 4 \div 3 = 9$
Satisfy the equation $16 \times 5 \div 10 + 4 - 3 = 9$
$9 = 9$

130. (b) $\overset{\curvearrowleft}{4 \times 5 \times 2} = 524$, $\overset{\curvearrowleft}{3 \times 7 \times 2} = 723$,
$\overset{\curvearrowleft}{6 \times 8 \times 7} = 876$
$\therefore \quad \overset{\curvearrowleft}{9 \times 4 \times 5} = 459$

131. (b) Putting $+ = -$, $- = \times$; $\div = +$ and $\times = \div$
in $15 - 3 + 10 \times 5 \div 5$
$\Rightarrow \quad 15 \times 3 - 10 \div 5 + 5$
$45 - 2 + 5 = 48$

132. (b) $\overset{\curvearrowleft}{7 \times 4 \times 9} = 4\,7\,9$, $\overset{\curvearrowleft}{9 \times 5 \times 2} = 5\,9\,2$, $\overset{\curvearrowleft}{6 \times 9 \times 5}$
$= 9\,6\,5$, $\overset{\curvearrowleft}{8 \times 6 \times 2} = 6\,8\,2$

133. (b) Age of Son = x, Age of doctor = 4x
$4x + 10 = 2(x + 10)$
$4x - 2x = 20 - 10$
$2x = 10$
$x = 5$
Age of Son = 5 year

134. (a) Let the age of Mona = $x$
Her husband age = $y$
Daughter's age = $z$
A/c to the question
$y = x - 6$ (1)
$5z = x$ (2)
$z - 3 = 5$ (3)
$\boxed{z = 8}$
So, $x = 5 \times 8 = 40$
Age of Mona = $40 - 6 = 34$

135. (b) $678 : \frac{67}{8} \Rightarrow$ Quotient (Q) = 8, Remainder (R) = 3 i.e = 83

$476 : \frac{47}{6} \Rightarrow Q = 7, R = 5$ i.e. 75

$567 : \frac{56}{7} = Q = 8, R = 0$ i.e. 80

$369 : \frac{36}{9} = Q = 4, R = 0$ i.e. 40

136. (b)

137. (b) Let present age of Rakhi = x years
Age of Rakhi at the time of engagement = (x – 10) years
According to question,

$$x = \frac{5}{3} \times (x - 10)$$

$$3x = 5x - 50$$

$$2x = 50$$

$$\therefore \quad x = \frac{50}{2} = 25 \text{ years}$$

$\therefore$ Mother's age of Rakhi = 2 × 25 = 50 years.
$\therefore$ Mother's age of Rakhi at the time of her engagement = 50 – 10 = 40 years.

138. (c) Option (a),
$9 - 3 + 8 \div 4 \times 7 = 28$
$20 \neq 28$
option (b),
$9 \times 3 - 8 \div 4 + 7 = 28$
$32 \neq 28$
option (c),
$9 \div 3 + 8 \times 4 - 7 = 28$
$28 = 28$
$\therefore$ option (c) is correct.

139. (b) As,
$4 * 5 \% 3 = 8000$
$\Rightarrow (4 \times 5)^3 = 8000$
and
$2 * 5 \% 2 = 36$
$\Rightarrow (2 \times 3)^2 = 36$
Similarly,
$4 * 3 \% 3 = ?$
$(4 \times 3)^3 = 1728$

140. (c) Let A's present age be $x$
B's age = $x - 9$
A's age 3 year later
$= x + 3$
B's age 4 year ago
$= x - 9 - 4$
A/c to the question
$x + 3 + x - 9 - 4 = 76$
$2x = 86$
$x = 43$
B's present age = 43 – 9
= 34

$$\text{C's present age} = \frac{\text{B's}}{2}$$

$$\text{Hence age of C after 10 year} = \frac{34}{2} = 17 + 10 = 27$$

141. (a) option (a),
$4 \times 3 + 6 \div 2 - 7 = 8$
$15 - 7 = 8$
So, option (a) is correct.

142. (b) As, $3 \# 4 \% 8 = 6$

$$3 \div 4 \times 8 = 6$$

$$\frac{3}{4} \times 8 = 6$$

and $9 \% 4 \# 3 = 12$

$$9 \times 4 \div 3 = 12$$

$$9 \times \frac{4}{3} = 12$$

Similarly, $12 \% 6 \# 24 = ?$

$$12 \times 6 \div 24 = 3$$

$$12 \times \frac{6}{24} = 3$$

So, answer is 3.

143. (b) From option (b).
$18 \div 6 \times 9 = 27$

$$\frac{18}{6} \times 9 = 27$$

So, option (b) is correct.

144. (b) As,

$$\frac{18 \times 3}{6} = 9, \quad \frac{36 \times 5}{6} = 30$$

Similarly,

$$\frac{19 \times 18}{6} = 57$$

So, value of A is 57.

145. (d) Let present age of P = 5x and present age of Q = 8x
According to question,
After 3 years,

$$\frac{5x + 3}{8x + 3} = \frac{8}{11}$$

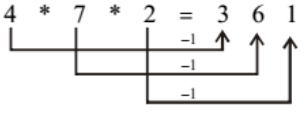
$64x + 24 = 55x + 33$
$64x - 55x = 33 - 24$
$9x = 9$

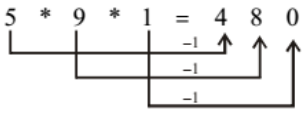
$$\therefore \quad x = \frac{9}{9} = 1$$

$\therefore$ Present age of Q = 8x = 8 × 1 = 8 years.

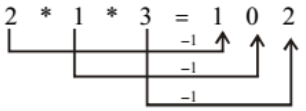
146. (b) The expression is :
15 S 16 Q 2 P 4 = 47
$15 + 16 , 2 \times 4 = 47$
47 = 47
So, option (2) is true.

147. (d) As,






Similarly,




148. (a) If,

| | |
|---|---|
| + = – | × = ÷ |
| ÷ = + | – = × |

then,
$126 \div 14 - 7 \times 3 + 2 = -10$

149. (b) According to question;
As, $12 \times 9 = \underset{\frown}{108} \Rightarrow 810$
$15 \times 9 = \underset{\frown}{135} \Rightarrow 513$
Similarly,
$13 \times 8 = \underset{\frown}{104} \Rightarrow 410.$

150. (c) Let total age of a mother = x
total age of her daughter = y
According to question,
$x + y = 60$ ....(i)
$x - y = 30$ ....(ii)
from Eq. (i) and (ii)
$x = 45$
$y = 15$
$\therefore$ Age of mother = 45 years.

151. (c) If
P = ÷
Q = ×
R = +
S = –
Then, 18 Q 12 P 4 R 5 S 6 = ?
$\Rightarrow 18 \times 12 \div 4 + 5 - 6$
$\Rightarrow 18 \times 3 + 5 - 6$
$\Rightarrow 59 - 6 = 53.$

152. (b) From option, (b)
$14 \div 2 \times 4 > 6 \times 4$
$28 > 24$
$\therefore$ Option (b) is correct.

153. (c) From option (c)
$43 - 9 + 6 \div 3 \times 8 = 50$
$\Rightarrow 43 - 9 + 2 \times 8$
$\Rightarrow 43 - 9 + 16$
$\Rightarrow 50 = 50$
So, option (c) is correct.

154. (d) As,
$49 - 2 = 47$
$90 - 6 = 84$
Similarly,
$53 - 7 = 46$

155. (d) As
$1/4/3 \Rightarrow (1+1)/(4+1)/(3+1) = 2/5/4 = 254$
$3/6/8 \Rightarrow (3+1)/(6+1)/(8+1) = 4/7/9 = 479$
Similarly
$5/2/7 \Rightarrow (5+1)/(2+1)/(7+1) = 6/3/8 = 638$

156. (c) As,
$85 \times 5 - 3 = 20 \Rightarrow 85 \div 5 + 3 = 20$
$18 \times 2 - 1 = 10 \Rightarrow 18 \div 2 + 1 = 10$
Similarly,
$100 \times 20 - 5 = 10 \Rightarrow 100 \div 20 + 5 = 10$

157. (c) Option (c)
$25 + 18 \div 2 - 4 = 20$ (By interchanging + and –)
$25 - 18 \div 2 + 4 = 20$
$25 - 9 + 4 = 20$
So, option (c) is correct.

158. (b) Let present age of A and B be 3x and 5x.
According to question,
C celebrated his 10th birthday 4 years ago,
$\therefore$ Present age of C = 10 + 4 = 14
Now,
After 7 years,
(5x + 7) = 2 × (present age of C + 7)
5x + 7 = 2 (14 + 7)
5x + 7 = 2 × 21
5x = 42 – 7 = 35

$\therefore \quad x = \frac{35}{5} = 7$

$\therefore$ Present age of A = 3x = 3 × 7 = 21 years.

159. (b) Tanya's mother is thrice the age of her daughter
So, Tanya's mother Nisha's current age
= 3 × 10 = 30 years.
Tanya's father Deepak's current age
= 30 + 5 = 35 years.
So, Deepak's age at the time of Tanya's birth
= 35 – 10 = 25 years.

160. (b) $8 \times 2 + 5 - 16 \div 4 = 14$
After changing '×' and '+', we get
$8 + 2 \times 5 - 16 \div 4 = 8 + 10 - 4 = 14$

161. (a) Let Malini's current age is x years, then Shipra's current age is (65 – x) years.
ATQ,
$(65 - x) + 5 - (x + 5) = 15$
$65 - 2x = 15 \Rightarrow 2x = 50, x = 25$ years
Hence, Malini's current age = 25 years.

162. (d) $5 + 16 - 4 \times 14 \div 2 = 59$
changing ÷ and –, we get
$5 + 16 \div 4 \times 14 - 2 = 59$
$5 + 4 \times 14 - 2 = 5 + 56 - 2 = 59$

163. (d) The given expression:
$15 + 15 - 2 \times 10 \div 35 = 16$
After exchanging '+' and '÷', we get
$15 \div 15 - 2 \times 10 + 35 = 16$
$1 - 20 + 35 = 16$
$36 - 20 = 16$
$16 = 16.$

164. (b) From option (b)
$18 + 12 \times 8 - 6 \div 3 = 9$
$\Rightarrow 18 \div 12 \times 8 - 6 + 3 = 9$
$\Rightarrow \frac{18}{12} \times 8 - 6 + 3 = 9 \Rightarrow 12 - 6 + 3 = 9$
$\Rightarrow 9 = 9$ (L.H.S = R.H.S)
So, option (b) is correct.

165. (a) From option (a)
$9 + 4 \div 2 - 6 \times 3 = 4 \div 3 \times 6 - 9 + 1$
$\Rightarrow 9 + 6 \div 2 - 4 \times 3 = 6 \div 3 \times 4 - 9 + 1$
$\Rightarrow 9 + \frac{6}{2} - 4 \times 3 = \frac{6}{3} \times 4 - 9 + 1$
$\Rightarrow 9 + 3 - 4 \times 3 = 2 \times 4 - 9 + 1$
$\Rightarrow 12 - 12 = 8 - 9 + 1$
$\Rightarrow 0 = 0$ (L. H. S. = R.H.S)
So, option (a) is correct answer.

166. (b) From option (b).
$12 \div 4 + 2 - 6 \times 3 = 3 \div 12 + 6 \times 2 - 4$
$\Rightarrow 12 + 6 \div 2 - 4 \times 3 = 3 + 12 \div 4 \times 2 - 6$
$\Rightarrow 12 + 3 - 12 = 3 + 3 \times 2 - 6$
$\Rightarrow 15 - 12 = 3 + 6 - 6$
$\Rightarrow 3 = 3$ (L. H. S. = R. H. S.)

167. (b) 20 A 15 C 3 D 8 B 9
$\Rightarrow 20 + 15 \div 3 \times 8 - 9 \Rightarrow 20 + 5 \times 8 - 9$
$\Rightarrow 20 + 40 - 9 \Rightarrow 60 - 9 = 51$

168. (c) $25 + 5 \times 7 - 12 \div 3 = 26$
$25 \div 5 \times 7 - 12 + 3 = 26$
$\Rightarrow 5 \times 7 - 12 + 3 = 26 \Rightarrow 35 - 12 + 3 = 26$
$\Rightarrow 23 + 3 = 26 \Rightarrow 26 = 26$

169. (a) $5 + 3 \times 4 - 12 \div 2 = -1$
$\Rightarrow 5 - 3 \times 4 + 12 \div 2 = -1$
$\Rightarrow 5 - 12 + 6 = -1 \Rightarrow 11 - 12 = -1$
$\Rightarrow -1 = -1$ (L.H.S. = R.H.S.)

170. (c) 51 C 17 D 15 A 22 B 34
$\Rightarrow 51 \div 17 \times 15 + 22 - 34$
$\Rightarrow 3 \times 15 + 22 - 34 \Rightarrow 45 + 22 - 34 = 67 - 34 = 33$

171. (a) From option (a)
$9 + 7 \times 5 - 18 \div 2 = 3 \times 4 - 10 + 45 \div 5$
$\Rightarrow 9 + 4 \times 5 - 18 \div 2 = 3 \times 7 - 10 + 45 \div 5$
$\Rightarrow 9 + 4 \times 5 - 9 = 3 \times 7 - 10 + 9$
$\Rightarrow 20 = 20$ (L.H.S. = R.H.S.)
So, option (a) is correct.

172. (c) Let present ages of Asha and Lata = $5x$ and $6x$
According to question,
$6x - 5x = 6 \quad \therefore \quad x = 6$
$\therefore$ Lata's present age = $6x = 6 \times 6 = 36$
$\therefore$ Lata's age after 5 years = $36 + 5 = 41$ years

173. (c) From option (c)
$67 - 76 + 43 = 100$
After interchange (+ and –) sign
$67 + 76 - 43 = 100$
$\Rightarrow 143 - 43 = 100 \Rightarrow 100 = 100$
So, option (c) is correct.

174. (c) From option (c),
$73 - 13 \times 42 \div 14 + 56 = 56$
After interchanging the signs – and +
$73 + 13 \times 42 \div 14 - 56 = 56.$
$73 + 13 \times 3 - 56 = 56.$
$73 + 39 - 56 = 56$
$112 - 56 = 56$
$56 = 56$
So, option (c) is correct.

175. (a) From option (a),
$16 \div 9 + 4 \times 8 = 34$
After interchanging the signs + and ÷
$16 + 9 \div 4 \times 8 = 34$
$16 + \frac{9}{4} \times 8 = 34$
$16 + 18 = 34; 34 = 34$
So, option (a) is correct.

176. (d) We have,
$[\{(32 \times 24) - (4 \div 3)\} + (3 - 2)] \div 3$
On interchanging the signs
$[\{(32 - 24) + (4 \times 3)\} \div (3 + 2)] \times 3$
$= [\{(8) + (12)\} \div (5)] \times 3 = [20 \div 5] \times 3 = 4 \times 3 = 12.$

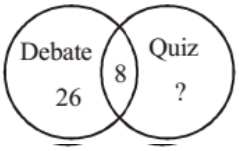
177. (a) Given, total Students = 11
Total Boys = 6
i.e. Total Girls = $11 - 6 = 5$
Probability that the class monitor is a Girl $= \frac{5}{11}$.

178. (c) Let there are total 100 students in training camp.
Cricket training received $= 100 \times \frac{14}{100} = 14$ students
Hockey training received
$= (100 - 14) \times \frac{22}{100} = 86 \times \frac{22}{100} = 18.92$
Badminton training received
$= (86 - 18.92) \times \frac{1}{2} = 67.08 \times \frac{1}{2} = 33.54\%$
The students did not receive training in any of the three games = Remaining half students = 33.54%

179. (a) $68 + 138 \div 23 - 54 = 20$
$68 + 6 - 54 = 20; 74 - 54 = 20$
$20 = 20$

180. (d) $40 + 15 \times 3 - 72 \div 9 = 40 + 45 - 8$
$= 85 - 8 = 77$

181. (b)




Hence, number of students participated only in Quiz
$= 68 - (26 + 8) = 34$

182. (c) $18 \div 9 + 12 \times 4 - 8 = 15$
By interchanging (–) and (÷),
$\Rightarrow 18 - 9 + 12 \times 4 \div 8 = 9 + 12 \times \frac{4}{8}$
$= 9 + 6 = 15$

183. (d) $6 \div 3 + 12 - 6 = 5$
By interchanging sign $-$ and $\div$,
$$6 - 3 + 12 \div 6 = 3 + \frac{12}{6} = 3 + 2 = 5$$
Hence, option (d) is correct.

184. (c) Interchange 35 and 45, $\times$ and $-$
$\Rightarrow 45 + 15 \times 4 - 35 \div 5 = 98$
$\Rightarrow 45 + 60 - 7 = 98$
$\Rightarrow 98 = 98$

185. (c) A denotes addition
B denotes Multiplication
C denotes Subtraction
D denotes division
$\Rightarrow 43 + 22 - 15 \times 4 + 72 \div (10 - 2)$
$\Rightarrow 65 - 60 + 9 = 14$

186. (d) $44 + 32 \div 8 - 16 \times 3 = 0$
$44 + 4 - 48 = 0$

187. (c) $Z = Y > R = M$ and $G > H = Z = Q$
$R > Z$ is not correct.

188. (b) Sum of incomes of A, B, C, D, E, F is = 39000
Total income of B, D, E, F = 25000
$A = C - 4000$
$A + C = 39000 - 25000$
$A + C = 14000$
$C - 4000 + C = 14000$
$2C = 18000$
$C = 9000$

189. (a) $A + A^2 + A^3 = 399$ ...(1)
Putting the value '7' in equation (1), we get
$7 + (7)^2 + (7)^3$
$\Rightarrow 7 + 49 + 343 = 399$
$B + B^2 + B^3 = 819$ ...(2)
Putting the value '9' in equation (2), we get;
$9 + (9)^2 + (9)^3$
$\Rightarrow 9 + 81 + 729$
$\Rightarrow 819$
Hence, according to question;
$(A + B)^2 = (7 + 9)^2 = (16)^2 = 256$

190. (c)

| | |
|---|---|
| A ⟶ '+' | B ⟶ '×' |
| C ⟶ $-$ | D ⟶ $\div$ |

35 B 2 A 5 B (40 C 37) A (8 B 4) D 16 C 14
$35 \times 2 + 5 \times (40 - 37) + (8 \times 4) \div 16 - 14$
$70 + 5 \times 3 + 32 \div 16 - 14$
$70 + 15 + 2 - 14 = 73$

191. (c) Interchange $\times$ and $-$ $25 \times 5 - \frac{50}{10} + 35$
$\Rightarrow 125 - 5 + 35 = 155$

192. (d) $31 \times 2 + 60 \div 30 - 15 = 49$
$$62 + \frac{60}{30} - 15 = 49$$
$64 - 15 = 49$
$49 = 49$