

1. Which of the following statement is true?

- A. Every point on the number line represents a rational number
- B. The product of a rational number and its reciprocal is 0.
- C.  $(17 \times 12)^{-1} = 17^{-1} \times 12$
- D. Reciprocal of  $\frac{1}{a}$ ,  $a \neq 0$  is a

2. The number which is subtracted from  $\frac{27}{13}$  to get  $\frac{-3}{7}$  is \_\_\_\_\_.

- A.  $\frac{228}{91}$
- B.  $\frac{1}{91}$
- C.  $\frac{200}{91}$
- D.  $\frac{198}{91}$

3. The sum of the additive inverse and multiplicative inverse of 2 is \_\_\_\_\_.

- A.  $\frac{3}{2}$
- B.  $\frac{-3}{2}$
- C.  $\frac{1}{2}$
- D.  $\frac{-1}{2}$

4. If  $\left(\frac{2}{3}\right)^{\text{rd}}$  of a number is 20 less than the original number, then the number is \_\_\_\_\_.

- A. 60
- B. 40
- C. 80
- D. 120

5. Solution of the equation  $6(3x + 2) - 5(6x - 1) = 6(x - 3) - 5(7x - 6) + 12x$  is \_\_\_\_\_.

- A. -1
- B. 1
- C. 0
- D. 2

$\left(\frac{2}{3}\right)^{\text{rd}}$  of a number when multiplied by  $\frac{3}{4}$  of the same number make 338.

6. The number is \_\_\_\_\_.

- A. 18
- B. 24
- C. 36
- D. 26

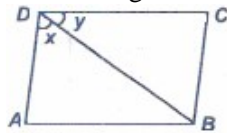
7. The sum of the measures of the external angles of any polygon is \_\_\_\_\_.

- A.  $180^\circ$
- B.  $360^\circ$
- C.  $540^\circ$
- D. Depends on the number of sides

8. Four angles of a quadrilateral are in the ratio 3: 5: 7: 9. The greatest angle is \_\_\_\_\_.

- A.  $125^\circ$
- B.  $75^\circ$
- C.  $135^\circ$
- D.  $120^\circ$

9. ABCD is a parallelogram as shown. Then the angles x and y are related as \_\_\_\_\_.



- A.  $x = y$
- B.  $x < y$
- C.  $x > y$
- D. Cannot be determined from given data

10. If  $\sqrt{0.01 + \sqrt{0.0064}} = x$ , then the value of x is \_\_\_\_\_.

- A. 0.3
- B. 0.03
- C.  $\sqrt{0.18}$
- D. None of these

11. The value of  $\sqrt{99} \times \sqrt{396}$  is \_\_\_\_\_.

- A. 208
- B. 198
- C. 254
- D. 205

12. The greatest six - digit number, which is a perfect square is \_\_\_\_\_.

- A. 998001
- B. 995001

- C. 997001
- D. 996001

13. The value of  $\sqrt[6]{\left(\frac{91125}{216}\right)^2}$  is \_\_\_\_\_.

- A. 4.5
- B. 5.5
- C. 6.5
- D. 7.5

14. The smallest number by which 392 must be multiplied so that the product is a perfect cube, is \_\_\_\_\_.

- A. 3
- B. 5
- C. 7
- D. 9

15. The cube of an odd natural number, is \_\_\_\_\_.

- A. Even
- B. Odd
- C. Even or odd
- D. Can't say

16. What sum lent out at C.I. will amount to Rs.968 in 2 years at 10% p.a. interest?

- A. Rs.800
- B. Rs.1000
- C. Rs.1200
- D. Rs. 500

17. If 5% more is gained by selling an article for Rs.350 than by selling it for Rs.340, the cost of the article is \_\_\_\_\_.

- A. Rs.50
- B. Rs.160
- C. Rs.200
- D. Rs.225

18. The C.I. on a certain sum for 2 years is Rs.410 and S.I. is Rs.400. The rate of interest per annum is \_\_\_\_\_.

- A. 10 %
- B. 8 %
- C. 5 %
- D. 4 %

19.  $8\frac{1}{3}\%$  expressed as a fraction is \_\_\_\_\_.

25

- A.  $\frac{3}{25}$
- B.  $\frac{3}{12}$
- C.  $\frac{1}{12}$
- D.  $\frac{1}{4}$

20. If quotient =  $3x^2 - 2x + 1$ , remainder =  $2x - 5$  and divisor =  $x + 2$ , then the dividend is \_\_\_\_\_.

- A.  $3x^3 - 4x^2 + x - 3$
- B.  $3x^3 - 4x^2 - x + 3$
- C.  $3x^3 + 4x^2 - x + 3$
- D.  $3x^3 + 4x^2 - x - 3$

21. The degree of the polynomial  $5x^3 - 6x^3y + 4y^2 - 8$  is \_\_\_\_\_.

- A. 3
- B. 4
- C. 2
- D. Cannot be determined

22. The product of  $(x^2 + 3x + 5)$  and  $(x^2 - 1)$  is \_\_\_\_\_.

- A.  $x^4 + 3x^3 - 4x^2 - 3x - 5$
- B.  $x^4 + 3x^3 + 4x^2 - 3x - 5$
- C.  $x^4 + 3x^3 + 4x^2 + 3x - 5$
- D.  $x^4 + x^3 + x + 5$

23. The ratio of the areas of a square to that of a square drawn on its diagonal is \_\_\_\_\_.

- A. 1: 1
- B. 1: 2
- C. 1: 3
- D. 1: 4

24. The surface areas of the six faces of a rectangular solid are 4, 4, 8, 8, 18 and 18 square centimetres. The volume of the solid, in cubic centimetres is \_\_\_\_\_.

- A. 24
- B. 48
- C. 60
- D. 324

25. The ratio of areas of two squares, one having double its diagonal than the other, is \_\_\_\_\_.

- A. 3 : 2
- B. 4 : 1
- C. 3 : 1
- D. 4 : 3

26. The area of a trapezium is  $28 \text{ cm}^2$  and one of its parallel sides is 6 cm. If its altitude is 4 cm, then its other parallel side is \_\_\_\_\_.

- A. 8 cm
- B. 4 cm
- C. 6 cm
- D. 9 cm

27. If  $\frac{10}{3} \times 3^x - 3^{x-1} = 81$ , then the value of x is \_\_\_\_\_.

- A. 2
- B. 1
- C. 3
- D. 0

28. Match the following provided that a and b are any rational numbers different from zero and x, y are any rational numbers.

(1) $a^x \times a^y$	(a) $a^{x-y}$
(2) $a^x \div a^y$	(b) $a^{xy}$
(3) $(a^x)^y$	(c) $a^{x+y}$
(4) $(ab)^x$	(d) $\frac{a^x}{b^x}$
(5) $\left(\frac{a}{b}\right)^x$	(e) $a^x \cdot b^x$

- A. 1-(c), 2-(a), 3-(b), 4-(e), 5-(d)
- B. 1-(b), 2-(c), 3-(a), 4-(e), 5-(d)
- C. 1-(a), 2-(c), 3-(d), 4-(e), 5-(b)
- D. 1-(a), 2-(b), 3-(c), 4-(d), 5-(e)

29. The reciprocal of the rational number is  $\left(\frac{3}{2}\right)^{-2} \div \left(\frac{1}{3}\right)^{-3}$  is \_\_\_\_\_.

- A.  $\frac{240}{4}$
- B.  $\frac{241}{2}$
- C.  $\frac{243}{4}$
- D.  $\frac{241}{4}$

30. If  $x : y = 2 : 3$  and  $2 : x = 1 : 2$ , then value of y is \_\_\_\_\_.

- A.  $\frac{1}{3}$

- $\frac{3}{2}$
- B.  $\frac{3}{2}$
- C. 6
- D.  $\frac{1}{2}$

31. A can do a 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
- B. 4.5
- C. 6
- D. 5

32. If 5 men take an hour to dig a ditch, how long should it take 12 men to dig a ditch of the same type?

- A. 25 mins
- B. 30 mins
- C. 28 mins
- D. 20 mins

33. One factor of  $-x^2 + x\sqrt{3} + 6$  is \_\_\_\_\_.

- A.  $2\sqrt{3} + x$
- B.  $-2\sqrt{3} + \sqrt{3}x$
- C.  $x - \sqrt{3}$
- D.  $2\sqrt{3} - x$

34. One of the factors of  $x^2 + \frac{1}{x^2} + 2 - 2x - \frac{2}{x}$  is \_\_\_\_\_.

- A.  $x - \frac{1}{x}$
- B.  $x + \frac{1}{x} - 1$
- C.  $x + \frac{1}{x}$
- D.  $x^2 + \frac{1}{x^2}$

35. Evaluation of  $(8.6)^2 - (1.4)^2$  is \_\_\_\_\_.

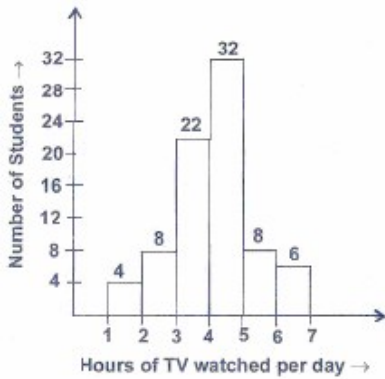
- A. 70
- B. 72
- C. 60
- D. 40

36.  $(0, -3)$  lies on

- A. Positive x-axis

- B. Negative x-axis
- C. Positive y-axis
- D. Negative y-axis

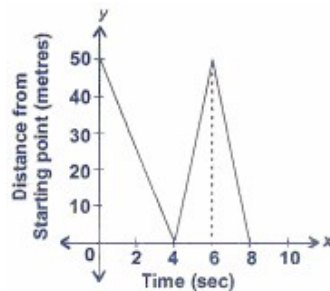
37. The number of hours for which students of a particular class watched television during holidays is shown through the given graph. Answer the following question.



The number of students watched TV for less than 4 hours, is \_\_\_\_\_.

- A. 4
- B. 8
- C. 34
- D. 22

38. On the basis of the given graph, the total distance travelled during 8 seconds, is \_\_\_\_\_.



- A. 0 m
- B. 100 m
- C. 150 m
- D. 50 m

39. 21436587 is divisible by \_\_\_\_\_.

- A. 2
- B. 5
- C. 7
- D. 9

40. If N divided by 5 leaves a remainder of 3, then one's digit of N must be \_\_\_\_\_.

- A. Either 3 or 6
- B. Either 3 or 8
- C. Either 8 or 1
- D. Either 8 or 6

41. When a certain number is multiplied by 13, the product consists entirely of fives. The smallest such number is \_\_\_\_\_.

- A. 41625
- B. 42515
- C. 42735
- D. 42135

42. At 7.00 am, the temperature was  $-6^{\circ}\text{F}$ . The temperature was  $8^{\circ}\text{F}$  higher at noon. Which one of the following expression can be used to calculate the temperature at noon ?

- A.  $(-6 + 8)^{\circ}\text{F}$
- B.  $(-6 - 8)^{\circ}\text{F}$
- C.  $(8 + 6)^{\circ}\text{F}$
- D.  $(8 - (-6))^{\circ}\text{F}$

43. Two tankers contain 150 litres and 100 litres of petrol respectively. The maximum capacity of container which can be used to measure exactly petrol of tanks, is \_\_\_\_\_.





- A. 150 litres
- B. 100 litres
- C. 50 litres
- D. 25 litres

44. Mohit has to take his medication every four days. If he takes it next Sunday, how many days will it be before he takes his medication on another Sunday?

- A. 23
- B. 25
- C. 28
- D. 20

45. Choose from the four diagrams marked (A), (B), (C) and (D) the one that best illustrates the relationship among three given classes.

Bus, Scooter, Conveyance

- A. 
- B. 
- C. 
- D. 

46. Tree is to ground as chimney is to \_\_\_\_\_

- A. Smoke
- B. Brick
- C. Sky
- D. House

47. The owner of the Lucky Fish Restaurant is using his computer to create business cards. The logo he has chosen is shown here.



Which transformation should he use on the left fish to produce the right fish?



- A. Translation
- B. Rotation of  $90^\circ$
- C. Reflection
- D. Rotation of  $180^\circ$

48. There are four problem figures A, B, C, and D and four answer figures marked (A), (B), (C) and (D). Select a figure from amongst the answer figures which will continue the same series as given in the problem figures.

Problem Figures



A B C D

- A.
- B.
- C.
- D.

What is the value of  $x$  in the given equation?

49. 
$$\frac{(3x + 1)}{16} + \frac{(2x - 3)}{7} = \frac{(x + 3)}{8} + \frac{(3x - 1)}{14}$$

- A. 2
- B. 4
- C. 3
- D. 5

50. If  $\triangle RTW \cong \triangle ABC$ , what is the measure of  $\angle T$  in the given figure ?



- A.  $12^\circ$
- B.  $72^\circ$
- C.  $80^\circ$
- D.  $90^\circ$