VNR8M

Virudhunagar District
Common Half Yearly Examination - December 2023

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Standard - 8
MATHS

Time Allowed: 2.30 Hours

Maximum Marks: 100

9×1=9

I. Choose the correct answer:

1. Which of the following pairs is equivalent?
   a) $\dfrac{-20}{12}, \dfrac{5}{3}$ b) $\dfrac{16}{-30}, \dfrac{-8}{15}$ c) $\dfrac{-18}{36}, \dfrac{-20}{44}$ d) $\dfrac{7}{-5}, \dfrac{-5}{7}$

2. The square of 43 ends with the digit
   a) 9   b) 6   c) 4   d) 3

3. A cube has _____ faces.
   a) 6   b) 8   c) 12   d) 3

4. If the area of a square is $36x^4y^2$, then its side is _____.
   a) $8 x^2y^2$ b) $6 x^4y^2$ c) $6 x^2y$ d) $-6 x^2y$

5. The largest number of three consecutive numbers is x+1, then the smallest number is _____.
   a) x   b) x + 1   c) x + 2   d) x − 1

6. The time taken for ₹4400 to become ₹4851 at 10%, compounded half yearly is _____.
   a) 6 months   b) 1 year
   c) 1 1/2 years   d) 2 years

7. The hypotenuse of a right angled triangle of sides 12 cm and 16 cm is _____.
   a) 28 cm   b) 20 cm   c) 24 cm   d) 21 cm

8. How many outcomes you can get when you toss three coins once?
   a) 6   b) 8   c) 3   d) 2

9. What is the eleventh Fibonacci number?
   a) 55   b) 77   c) 89   d) 144

II. Fill in the blanks:

5×1=5

10. The multiplicative inverse of −1 is _____.

11. The longest chord of a circle is _____.

12. If a and b are positive integers then the solution of the equation ax = b has to be always _____.

13. The compound interest on ₹5000 at 12% p.a. for 2 years compounded annually is _____.

14. Common prime factors of 30 and 250 are _____.

III. Say True or False:

5×1=5

15. The square root of 225 is 15.

16. Linear equation in one variable has only one variable with power 2.

17. In a right angled triangle, the hypotenuse is the greatest side.

18. y = −9x not passes through origin.

19. Loss or gain percentage is always calculated on the selling price.

IV. Match the following:

5×1=5

20. $(2x + 3)(2x - 3)$ − $\dfrac{\theta}{360^\circ} \times \pi r^2$

21. $4^{-3} \times 5^{-3}$ − $\dfrac{1}{2} \times d_1 \times d_2$

22. $\dfrac{4}{11} - x = \dfrac{-7}{11}$ − 20^{-3}

23. Area of sector of a circle   − $x = 1$

24. Area of Rhombus   − $4x^2 - 9$

V. Answer any 10 questions:

10×2=20

25. List any five rational numbers between the given rational numbers $\dfrac{-1}{2}$ and $\dfrac{3}{5}$.

26. Evaluate : $(2^{-5} \times 2^7) \div 2^{-2}$.

27. A spinner of radius 7.5 cm is divided into 6 equal sectors. Find the area of each of the sectors.

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28. Verify Euler's formula : Faces = 4, Vertices = 4, Edges = 6.
29. Find the value of 998^2 by using $(a - b)^2$ identity.
30. Factorise : $y^2 - 10y + 25$.
31. What is 25% of 30% of 400?
32. The price of a raincoat was slashed from ₹1016 to ₹901 by a shopkeeper in the rainy season to boost the sales. Find the rate of discount given by him.
33. Find the unknown in the following figure.
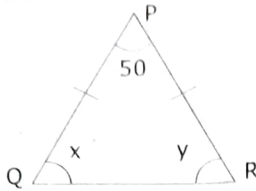
34. The diagonals of the rhombus is 12 cm and 16 cm. Find its perimeter.
35. If you have 2 school bags and 3 Water bottles then, in how many different ways can you choose each one of them, while going to school?
36. Using repeated subtraction method, find the H.C.F of 144 and 120.

VI. Answer any 8 questions: 8×5=40

37. Simplify : $\left[\dfrac{11}{8} \times \left(\dfrac{-6}{33}\right)\right] + \left[\dfrac{1}{3} + \left(\dfrac{3}{5} \div \dfrac{9}{20}\right)\right] - \left[\dfrac{4}{7} \times \dfrac{-7}{5}\right]$.

38. Find the square root by long division method 288369.
39. A rocket drawing has the measures as given in the figure. Find its area.
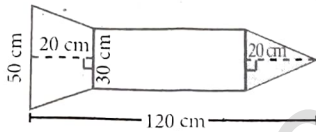
40. The radius of a sector is 16 cm and its central angle is 45°. Find (i) length of arc (ii) area of the sector (iii) perimeter of sector ($\pi = 3.14$)
41. (i) Multiply : $(2x + 5y)$ and $(3x - 4y)$
    (ii) Divide : $(4 m^2n^3 + 16 m^4n^2 - mn)$ by $2mn$.
42. If a train runs at 60 km/hr it reaches its destination late by 15 minutes, but if it runs at 85 km/hr it is late by only 4 minutes. Find the distance covered by the train.
43. A principal becomes ₹2028 in 2 years at 4% p.a compound interest. Find the principal.
44. If 48 men working 7 hours a day can do a work in 24 days, then in how many days will 28 men working 8 hours a day can complete the same work?
45. In fig. ΔPQR ~ ΔXYZ, find a and b.
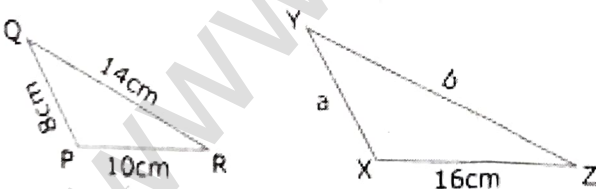
46. Using repeated division method find the H.C.F of 184, 230 and 276.
47. Verify the distributive property for the rational number $a = \dfrac{-1}{2}$, $b = \dfrac{2}{3}$ and $C = \dfrac{-5}{6}$ verify $a \times (b + c) = (a \times b) + (a \times c)$.
48. Find the volume of the cuboid whose dimensions are $(x + 2)$, $(x - 1)$ and $(x - 3)$.

VII. Answer any 2 questions: 2×8=16

49. a) Construct a quadrilateral ABCD, AB = 5 cm, BC = 4.5 cm, CD = 3.8 cm, DA = 4.4 cm and AC = 6.2 cm. Find its area.   **(OR)**
    b) Construct a rhombus NEST with NS = 9 cm and ET = 8 cm. Also, find its area.
50. a) Plot the following point: A(4,3), B(−4,5), C(0,0), D(−3,−6), E(5,−2), F(6,0), G(0,−5), H(3,3).   **(OR)**
    b) Draw the graph of y = 6.