Class : 8

Register Number

COMMON HALF YEARLY EXAMINATION - 2023-24

Time Allowed : 2.30 Hours] **MATHEMATICS** [Max. Marks : 100

PART - A

I. Choose the correct Answer. 10x1=10

1. The standard form of the sum $\frac{3}{4} + \frac{5}{6} + \left(\frac{-7}{12}\right)$ is ----------

   a) 1 b) $-\frac{1}{2}$ c) $\frac{1}{12}$ d) $\frac{1}{22}$

2. $(-2)^{-3} \times (-2)^{-2}$ = --------

   a) $-\frac{1}{32}$ b) $\frac{1}{32}$ c) 32 d) -32

3. A line segment which joins any two points on a circle is a ----------

   a) diameter b) radius c) chord d) circular arc

4. The product of $7P^3$ and $(2P^2)^2$ is ---------

   a) $14\,P^{12}$ b) $28\,P^7$ c) $9\,P^7$ d) $11\,P^{12}$

5. $(p+q)(p^2 - pq + q^2)$ is equal to --------

   a) $p^3 + q^3$ b) $(p+q)^3$ c) $p^3 - q^3$ d) $(p-q)^3$

6. A fruit vendor sells fruits for ₹ 200 gaining ₹ 40. His gain percentage is

   a) 20% b) 22% c) 25% d) $16\frac{2}{3}\%$

7. The difference between compound and simple interest on a certain sum of money for 2 years at 2% p.a is ₹ 1. The sum of money is --------

   a) ₹ 2000 b) ₹ 1500 c) ₹ 3000 d) ₹ 2500

8. If in a triangles PQR and XYZ, $\frac{PQ}{XY} = \frac{QR}{YZ}$ then they will be similar if

   a) $\angle Q = \angle Y$ b) $\angle P = \angle Y$ c) $\angle Q = \angle X$ d) $\angle P = \angle Z$

9. 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

10. Two numbers are said to be co-prime numbers if their HCF is --------

    a) 2 b) 3 c) 0 d) 1

II. Fill in the Blanks. 5x1=5

11. The cube root of 540 x 50 is ---------
12. A part of circumference of a circle is called as ---------
13. X - axis and Y - axis intersect at --------
14. If the compound interest is calculated quarterly, the amount is found using the formula --------
15. In a triangle, the outer angle is equal to the sum of -------- angles.

III. Say true or false. 5x1=5

16. The square root of 225 is 15.
17. A part of circumference of a circle is called as circular arc.
18. The co-ordinates of the origin are (1,1)
19. Depreciation value is calculated by the formula $P = \left(1 - \frac{r}{100}\right)^n$
20. The incentre is equidistant from all the vertices of a triangle.

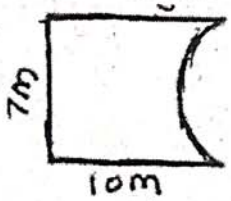
IV. Match the following. 5x1=5

21. Area of the sector of a circle - Inverse proportion
22. Circumference of a circle - (0, 0)
23. Purchase - spending - $\frac{\theta}{360} \times \pi r^2$
24. Price - consumption - $2\pi r$
25. Origin - Direct proportion

PART - B

V. Answer any 10 of the following. (Q.No.40 Compulsory) **10x2=20**

26. Divide: $\frac{-21}{5} \div \frac{-7}{-10}$
27. Find the square root of 784 by prime factorisation method.
28. Write the decimal form of the rational number. $1\frac{2}{5}$
29. Find the area of the sector central angle = 45° and r = 16 cm.
30. Find the area of the given figure. ($\pi = 22/7$)

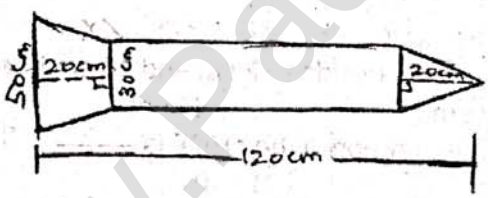


31. Expand: $-2P(5P^2 - 3P + 7)$
32. Find the cube root of 27000.
33. Solve: $2x + 5 = 9$.
34. An isosceles triangle has equal sides each 13 cm and a base 24 cm in length. Find its height?
35. Find the area of a rhombus whose diagonals are $d_1 = 6$ cm and $d_2 = 8$ cm.
36. 48 is 32% of which number?
37. If a mattress is marked for ₹.7500 and is available at two successive discounts of 10% and 20% find the amount to be paid by the customer.
38. Find the rate of interest if the difference between C.I and S.I on ₹.8000 compounded annually for 2 years is ₹.20.
39. Using repeated subtraction method to find the HCF of 42 and 70.
40. An examination paper has 3 sections, each with five questions and students are instructed to answer one question from each section. In how many different ways of can the questions be answered? **(OR)**
    Factorise: $x^2 + 8x + 15$.

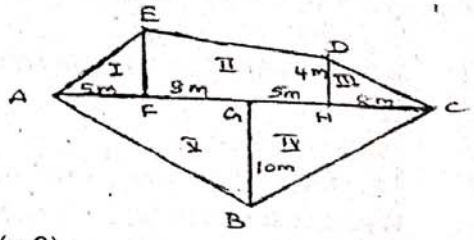
PART - C

VI. Answer any Seven questions. (Q.No.50 Compulsory.) **7x5=35**

41. Write the following numbers in ascending and descending order:
    $\frac{-5}{12}, \frac{-11}{8}, \frac{-15}{24}, \frac{-7}{-9}, \frac{12}{36}$
42. Evaluate $\sqrt[3]{\frac{9261}{8000}}$
43. A rocket drawing has the measures as given in the figure. Find its area.



44. Find the area of an irregular polygon field whose measures are as given in the figure.



45. Find the volume of cuboid whose dimensions are (x+2), (x-1) and (x-3).
46. Factorise the expression $8m^3 - 60m^2n + 150mn^2 - 125n^3$ by using the identity $(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$
47. If a company pay ₹.6 lakh for 15 workder for 20 days, how much would it need to pay for 5 workers for 12 days?
48. If a container lorries can transport 135 tonnes of goods in 5 days. How many more lorries are required to transport 180 tonnes of goods in 4 days?
49. A 20 feet ladder leans against a wall at height of 16 feet from the ground. How far is the base of the ladder from the wall?
50. In class VIII, a math club has four members M, A, T and H. Find the number of different ways, the club can elect (i) a leader (ii) a leader and an assistant leader. **(OR)**
    The sum of three consecutive odd numbers is 75. which is the largest among them?

VII. Answer any one of the following. **1x10=10**

51. a) Construct a quaderilateral NICE with NI = 4.5cm, IC = 4.3 cm, NE = 3.5 cm, NC = 5.5 cm, IE = 5cm
    Also find its area. **(OR)**
    b) Construct a rhombus PARK with PR = 9 cm and ∠P = 70°. Also find its area.

VIII. Answer one of the following. **1x10=10**

52. a) If the points P(5,3), Q(-3,3), R (-3, -4) and S form a rectange, then find the co-ordinate of S. **(OR)**
    b) Draw the graph of y = 5x.