8th All India RPS OLYMPIAD

Online & Offline Mega Event

QUESTION PAPER (PHASE – 1)

CLASS- VIII

RPS MATHS LEAGUE

Q1. 90% of x is 630 km then value of x is

(A) 650 km (B) 700 km (C) 800 km (D) 900 km

Q2. The compound interest on ₹ 50,000 at 4% per annum for 2 years, compounded annually is

(A) ₹ 4000 (B) ₹ 4080 (C) ₹ 4280 (D) ₹ 4050

Q3. If ₹ 2800 is $\frac{2}{7}$% of the value of a house; then the worth of the house is -

(A) ₹ 800000 (B) ₹ 980000 (C) ₹ 1400000 (D) ₹ 1200000

Q4. Alfred buys an old Scooter for ₹ 4700 and spends ₹ 800 on its repairs. If he sells the scooter for ₹ 5800, his gain percent is -

(A) $4\frac{4}{7}$% (B) $5\frac{5}{11}$% (C) 12% (D) 10%

Q5. The simple interest earned on ₹ 15000 in 3 years is ₹ 5400. Find the rate of interest per annum.

(A) 11.5% (B) 12.5% (C) 12% (D) 15%

Q6. The price of a table including 18% GST is ₹ 2360. What is its price before GST?

(A) ₹ 1800 (B) ₹ 2000 (C) ₹ 2100 (D) ₹ 2200

Q7. If 3A = 5B and 4B = 6C, then A : C is equal to

(A) 2 : 5 (B) 3 : 5 (C) 4 : 5 (D) 5 : 2

Q8. The fourth proportional to 5, 8, 15 is

(A) 18 (B) 20 (C) 21 (D) 24

Q9. A bag has coins of 50 paise, 25 paise and 10 paise in the respective ratio of 5 : 8 : 3 whose total value is ₹ 144. Find the number of 50 paise coins.

(A) 160 (B) 175 (C) 200 (D) 150

Q10. If $\frac{5x+3y}{5x-3y}=\frac{7}{3}$, find the value of the ratio x : y.

(A) 2 : 3 (B) 4 : 3 (C) 3 : 2 (D) 5 : 4

Q11. The ratio of the number of boys and girls in a school of 720 students is 7 : 5. How many more girls should be admitted to make the ratio 1 : 1?

(A) 90 (B) 180 (C) 240 (D) 120

Q12. When a plot is sold for ₹ 18700, the owner loses 15%. At what price must plot be sold in order to gain 15%?

(A) ₹ 21000 (B) ₹ 22500 (C) ₹ 25300 (D) ₹ 25800

Q13. If $\frac{52}{x}=\sqrt{\frac{169}{289}}$, , the value of x is

(A) 42 (B) 68 (C) 85 (D) 86

Q14. What is the least number to be added to 7700 to make it a perfect square?

(A) 77 (B) 69 (C) 44 (D) 31

Q15. What is the smallest number by which 3600 must be divided to make it a perfect cube?

(A) 650 (B) 300 (C) 450 (D) 600

Q16. If $\sqrt{3^n}=729$, then the value of n is

(A) 6 (B) 8 (C) 9 (D) 12

17. Find the value of $\sqrt{41-\sqrt{21+\sqrt{19-\sqrt{9}}}}$

(A) 3 (B) 5 (C) 6 (D) 12

Q18. Find the least perfect square that is exactly divisible by 12, 20 and 27 is

(A) 2700 (B) 3600 (C) 5400 (D) 8100

Q19. What is the exact value of the expression $\sqrt[3]{175616}-\sqrt[3]{46656}$ **?**

(A) 16 (B) 20 (C) 24 (D) 18

Q20. Which of the following is Primitive Pythagorean triplet?

(A) 16, 30, 34 (B) 24, 45, 51 (C) 8, 15, 17 (D) 40, 75, 85

Q21. If the hypotenuse of an isosceles right angled triangle is $\sqrt{128}$ **cm, then find the length of its equal sides?**

(A) 64 cm (B) 8 cm (C) 16 cm (D) 32 cm

Q22. A ladder 15m long reaches a window 12m high from the ground on a wall. The distance of the foot of the ladder from the base of the wall is:

(A) 9m (B) 5m (C) 3m (D) 8m

Q23. The diagonals of a rhombus are 16 cm and 30 cm. The length of each side of the rhombus is :

(A) 15 cm (B) 18 cm (C) 17 cm (D) 23 cm

Q24. A tree breaks due to a storm at a height of 5m from the ground and its top touches the ground at a distance of 12m from the base of the tree. Find the total original height of the tree.

(A) 13m (B) 18m (C) 17m (D) 25m

Q25. A boat sails 24 km towards the South and then turns to sail 7 km towards the West. How far is the boat from its starting position?

(A) 17 km (B) 25 km (C) 31 km (D) None of these

Q26. The marked price of a school bag is ₹ 800. If a discount of 15% is offered, what is its selling price?

(A) ₹ 660 (B) ₹ 680 (C) ₹ 700 (D) ₹ 720

Q27. If $5^{(x+3)} = 25^{(3x-4)}$, then the value of x is

(A) $\frac{5}{11}$ (B) $\frac{11}{5}$ (C) $\frac{11}{3}$ (D) $\frac{13}{5}$

Q28. The standard form of 608000000 is

(A) 6.08×10^{-8} (B) 6.08×10^{8}

(C) 60.8×10^{7} (D) 6.08×10^{-7}

Q29. If $2^{x-2} = 16$, then x = ...

(A) 6 (B) 8 (C) 5 (D) 3

Q30. If $5^{x-1} \times 5^2 = 5^6$, then value of x is

(A) 3 (B) 4 (C) 5 (D) 2

Q31. The value of $(5)^{\frac{1}{4}} \times (125)^{0.25}$ is

(A) $\sqrt{5}$ (B) $5\sqrt{5}$ (C) 5 (D) 25

Q32. The value of $(27)^{\frac{-2}{3}}$ lies between

(A) 2 and 3 (B) 1 and 2 (C) 3 and 4 (D) 0 and 1

Q33. If the diagonal of a square is doubled, then area of the square becomes

(A) 2 times (B) 3 times (C) 4 times (D) 6 times

Q34. The area of a trapezium is 384 cm². If its parallel sides are in the ratio 3 : 5 and the perpendicular distance between them is 12 cm, the smaller of parallel sides is -

(A) 16 cm (B) 24 cm (C) 32 cm (D) 40 cm

Q35. The area of a rectangular field is 2100 sq. metres. If the field is 60 metres long, what is its perimeter ?

(A) 180 m (B) 210 m (C) 240 m (D) 190 m

36. A square and a rectangle have equal areas. If their perimeters are P_1 and P_2 respectively, then

(A) $P_1 < P_2$ (B) $P_1 > P_2$ (C) $P_1 = P_2$ (D) None of these

Q37. The hypotenuse of a right-angled isosceles triangle is 5cm. The area of the triangle is

(A) 5 cm^2 (B) 6.25 cm^2 (C) 6.5 cm^2 (D) 12.5 cm^2

Q38. If the total surface area of a cube is 864 sq. cm, find the volume of the cube.

(A) 1728 cm^3 (B) 1624 cm^3 (C) 144 cm^3 (D) 1684 cm^3

Q39. The area of a rhombus is 120 sq. cm and its one diagonal is 20 cm, then find the length of another diagonal.

(A) 24 cm (B) 15 cm (C) 18 cm (D) 12 cm

Q40. What is the height of a triangle, if the base is 96 cm and the area is 360 sq. cm?

(A) 9.5 cm (B) 15 cm (C) 7.2 cm (D) 7.5 cm

Q41. If $x + \frac{1}{x} = 5$, then find $x^2 + \frac{1}{x^2}$

(A) 25 (B) 27 (C) 23 (D) 10

Q42. If $3x - 7y = 10$ and $xy = -1$, then the value of $9x^2 + 49y^2$ is

(A) 58 (B) 142 (C) 104 (D) -104

Q43. Simplify the expression: $4(2a - 3b) - 5(a - 2b)$

(A) 3a - 2b (B) 3a - 22b (C) 13a - 22b (D) 3a + 2b

Q44. Which of the following statements is false?

(A) $(x - a)^2 = x^2 - 2ax + a^2$ (B) $(a - b)^2 = a^2 - b^2 - 2ab$

(C) $(p + r)^2 = (p + r)(p + r)$ (D) $(a + b)^2 = a^2 + 2ab + b^2$

Q45. Find the simplified form of the expression: $(5x + 2)^2 - (5x - 2)^2$

(A) $25x^2 + 4$ (B) $50x^2 + 8$ (C) 20x (D) 40x

Q46. Sum of a number and its reverse is divisible by

(A) 37 (B) 11 (C) 9 (D) 8

Q47. What is the value of the algebraic expression $3x^2 - 2x + 5$ when $x = -1$?

(A) 10 (B) 6 (C) 4 (D) 2

Q48. A mother is 5 times her daughter's age. After 6 years, the mother will be 3 times her daughter's age. How old is the daughter now?

(A) 8 years (B) 9 years (C) 6 years (D) 4 years

Q49. If the sum of four consecutive odd numbers is 40, then smallest number is -

(A) 7 (B) 9 (C) 11 (D) 13

Q50. In a rhombus ABCD, if ∠ ACB = 40°, then ∠ ADB =

(A) 70° (B) 45° (C) 50° (D) 60°

Q51. In a square ABCD, AB = (2x + 3) cm and BC = (3x - 5) cm. Then, the value of x is

(A) 4 (B) 6 (C) 8 (D) 5

Q52. Two adjacent angles of a parallelogram are (2x + 25)° and (3x - 5)°. The value of x is

(A) 28 (B) 32 (C) 36 (D) 42

Q53. The three angles of a quadrilateral are 76°, 54° and 108°. Find the fourth angle.

(A) 118° (B) 122° (C) 129° (D) 112°

Q54. Find the number of diagonals in a hexagon

(A) 7 (B) 9 (C) 8 (D) 6

55. The marked price of a watch is ₹ 2400. A shopkeeper offers successive discounts of 10% and 5%. What is the final selling price?

(A) ₹ 2052 (B) ₹ 2060 (C) ₹ 2100 (D) ₹ 2040

Q56. Find the value of $(125)^0 + (25)^0 - (5)^0$

(A) 100 (B) 1 (C) 3 (D) 0

Q57. The area of a trapezium is 84 cm² and the lengths of its parallel sides are 12 cm and 16 cm. Find the height of the trapezium.

(A) 16 cm (B) 12 cm (C) 8 cm (D) 6 cm

Q58. A parallelogram has an area of 140 m² and a height of 14m. What is the length of its base?

(A) 14m (B) 20m (C) 7m (D) 10m

Q59. Each exterior angle of a regular polygon is 24°. How many sides does the polygon have?

(A) 12 (B) 15 (C) 18 (D) 24

Q60. The length of a rectangle is (2x + 3) cm and its breadth (x - 1) cm. What is its perimeter?

(A) (3x + 2) cm (B) (6x + 4) cm (C) (6x + 2) cm (D) (6x - 2) cm