

A

Standard IX
MATHEMATICS

Marks: 100

Time: 2.30 hrs.

Part - I

14 × 1 = 14

I. Choose the correct answer.

- If $A = \{x, y, z\}$ then the number of non-empty subsets of A is
a) 8 b) 5 c) 6 d) 7
- If $A \cup B = A \cap B$, then
a) $A \neq B$ b) $A = B$ c) $A \subset B$ d) $B \subset A$
- If $\sqrt{80} = k\sqrt{5}$ then $k =$
a) 2 b) 4 c) 8 d) 16
- Zeros of $(2 - 3x)$ is _____
a) 3 b) 2 c) $\frac{2}{3}$ d) $\frac{3}{2}$
- GCD of any two prime number is _____
a) -1 b) 0 c) 1 d) 2
- If $(2, 3)$ is a solution of linear equation $2x + 3y = k$ then, the value of k is
a) 12 b) 6 c) 0 d) 13
- PQ and RS are two equal chords of a circle with center O such that $\angle POQ = 70^\circ$ then $\angle ORS =$
a) 60° b) 70° c) 55° d) 80°
- The points $(-5, 2)$ and $(2, -5)$ lies in the
a) same quadrant b) II and III quadrant respectively
c) II and IV quadrant respectively d) IV and II quadrant respectively
- The ratio in which x-axis divides the line segment joining the points $(6, 4)$ and $(1, -7)$ is
a) 2 : 3 b) 3 : 4 c) 4 : 7 d) 4 : 3
- If $2 \sin 2\theta = \sqrt{3}$, then the value of θ is
a) 90° b) 30° c) 45° d) 60°
- The lateral surface area of a cube of side 12 cm is
a) 144 cm^2 b) 196 cm^2 c) 576 cm^2 d) 664 cm^2
- The mean of a set of numbers is \bar{x} . If each number is multiplied by z , the mean is
a) $\bar{x} + z$ b) $\bar{x} - z$ c) $z\bar{x}$ d) \bar{x}

13. If A is any event in S and its complement is A' then $P(A')$ is equal to _____.
- a) 1 b) 0 c) $1 - A$ d) $1 - P(A)$
14. A random experiment was conducted, which of this cannot be considered as a probability of an outcome?
- a) $\frac{1}{5}$ b) 72% c) 0 d) $-\frac{1}{7}$

Part - II

II. Answer any 10 questions. (Q.No.28 is compulsory)

10 × 2 = 20

15. If $A = \{-3, -2, 1, 4\}$ and $B = \{0, 1, 2, 4\}$, find $A - B$
16. Out of 500 car owners investigated, 400 owned car A and 200 owned car B, 50 owned both A and B cars. Is this data correct?
17. Express the surds in the simplest form : $\sqrt{8}$
18. Evaluate the following by using identities : 1001^3
19. Factorise the following : $x^2 + 10x + 24$
20. A chord is 12 cm away from the centre of the circle of radius 15 cm. Find the length of the chord.
21. Find the distance between the points (a, b) and (c, d)
22. If $\operatorname{cosec} A = \sec 34^\circ$, then find A.
23. Find the T.S.A and L.S.A of the cube, whose side is 10 cm. :
24. The following are scores obtained by 11 players in a cricket match 7, 21, 45, 12, 56, 35, 25, 0, 58, 66, 29. Find the median score.
25. Find the mode of the given data : 3.1, 3.2, 3.3, 2.1, 1.3, 3.3, 3.1
26. Two dice are rolled, find the probability that the sum is less than 13.
27. If a probability of a player winning a particular tennis match is 0.72. What is the probability of the player loosing the match.
28. Write the following in the form of 5^n : i) $\frac{1}{5}$ ii) $\sqrt{5}$

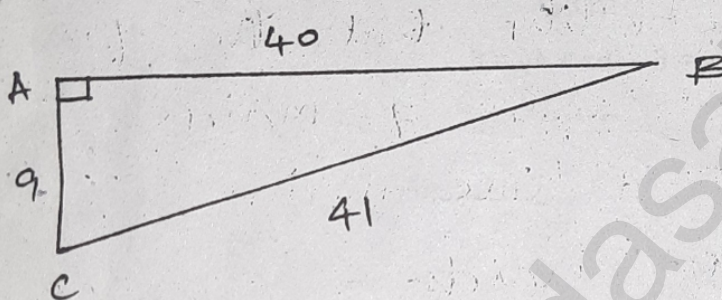
Part - III

III. Answer any 10 questions. (Q.No.42 is compulsory)

10 × 5 = 50

29. Verify $(A \cap B)' = A' \cup B'$ using Venn diagrams.
30. In a school, all students play either hockey or cricket or both. 300 play hockey, 250 play cricket and 110 play both games. Find,
- The number of students who play only hockey
 - The number of students who play only cricket
 - The total number of students in the school

31. Rationalise the denominator of $\frac{5+\sqrt{3}}{5-\sqrt{3}}$
32. Represent $\sqrt{9.3}$ on a number line.
33. Using factor theorem, show that $(x-5)$ is a factor of the polynomial $2x^3 - 5x^2 - 28x + 15$
34. If $(X+a)(x+b)(x+c) = x^3 + 14x^2 + 59x + 70$, find the value of
 i) $a+b+c$ ii) $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$
35. Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm, find the length of the common chord.
36. Find the coordinates of a point P on the line segment joining A(1,2) and B(6,7) in such a way that $AP = \frac{2}{5}AB$
37. Find all the trigonometric ratios of angle B :



38. The dimensions of a sweet are 22 cm x 18 cm x 10 cm. How many such boxes can be packed in a carton of dimensions 1 m x 88 cm x 63 cm
39. For the data, 11, 15, 17, $x+1$, 19, $x-2$, 3. If the mean is 14, find the value of x . Also find the mode of the data.
40. In an office, where 42 staff members work. 7 staff members are use cars, 20 staff members use two-wheelers and remaining 15 staff members are cycles. Find the relative probability frequencies.
41. 1500 families were surveyed and following data was recorded about their maids at homes.

Type of maids	Only part time	Only full time	Both
Number of families	860	370	250

A family is selected at random. Find the probability that the family selected has

- i) Both types of maids ii) Part time maids iii) No maids

42. The monthly income of A and B are in the ratio 3 : 4 and their monthly expenditures are in the ratio 5 : 7. If each saves ₹5000 per month. Find the monthly income of each.

Part - IV

IV. Answer all the questions.

2 x 8 = 16

43. a) Construct ΔPQR , whose sides are $PQ = 6$ cm, $\angle Q = 60^\circ$ and $QR = 7$ cm and locate its orthocentre.

(OR)

- b) Draw a triangle ABC, where $AB = 8$ cm, $BC = 6$ cm and $\angle B = 70^\circ$. Locate the circumcentre and draw the circumcircle.

44. a) Draw the graph : $y = 4x - 1$

(OR)

- b) Solve graphically : $3x + 2y = 6$; $6x + 4y = 8$

Kindly send me your key answers to our email id - padasalai.net@gmail.com