

CLASS X – MATHEMATICS
MODEL QUESTION PAPER
(SET- 9)

Time Allowed: 3 Hours

Maximum Marks: 80

Section A (1 × 20 = 20 Marks)

Q1-Q18 MCQs

Q1.

HCF of 144 and 216 is:

- (a) 24
- (b) 36
- (c) 48
- (d) 72

Q2.

Zero of polynomial $20x - 80$ is:

- (a) 2
- (b) 3
- (c) 4
- (d) 5

Q3.

The pair of equations

$$3x - y = 5$$

$$6x - 2y = 10$$

has:

- (a) Unique solution
- (b) No solution
- (c) Infinitely many solutions
- (d) Exactly two solutions

Q4.

The 35th term of AP: 6, 10, 14, ... is:

- (a) 142
- (b) 146
- (c) 150
- (d) 154

Q5.

Probability of getting a number greater than 2 on a die:

- (a) $1/6$
- (b) $1/3$
- (c) $2/3$
- (d) $5/6$

Q6.

Value of $\cos 30^\circ$ is:

- (a) $1/2$
- (b) $\sqrt{3}/2$
- (c) 1
- (d) 0

Q7.

Distance between (2,3) and (7,15) is:

- (a) 13
- (b) $\sqrt{169}$
- (c) 12
- (d) Both (a) and (b)

Q8.

Nature of roots of $x^2 - 3x + 2 = 0$ is:

- (a) Real & distinct
- (b) Real & equal
- (c) Not real
- (d) Irrational

Q9.

Area of circle of radius 28 cm ($\pi = 22/7$) is:

- (a) 2464 cm^2
- (b) 2500 cm^2
- (c) 2600 cm^2
- (d) 2400 cm^2

Q10.

Mean of 8, 16, 24, 32, 40 is:

- (a) 20
- (b) 24
- (c) 28
- (d) 18

Q11.

If sides of similar triangles are in ratio 4:9, ratio of areas is:

- (a) 4:9
- (b) 16:81
- (c) 9:4
- (d) 81:16

Q12.

The tangent to circle at any point is perpendicular to:

- (a) Chord
- (b) Radius
- (c) Diameter
- (d) Arc

Q13.

Volume of cylinder radius 14 cm height 15 cm ($\pi = 22/7$) is:

- (a) 9240 cm³
- (b) 9200 cm³
- (c) 9300 cm³
- (d) 9100 cm³

Q14.

If $\sin \theta = 1/2$, then $\theta =$

- (a) 30°
- (b) 45°
- (c) 60°
- (d) 90°

Q15.

Median of 5, 10, 15, 20, 25, 30 is:

- (a) 15
- (b) 17.5
- (c) 20
- (d) 18

Q16.

Mode of 2, 3, 4, 3, 5, 3 is:

- (a) 2
- (b) 3
- (c) 4
- (d) 5

Q17.

Value of $\sec^2\theta - \tan^2\theta$ is:

- (a) 0
- (b) 1
- (c) -1
- (d) 2

Q18.

Surface area of cube of side 11 cm is:

- (a) 726
 - (b) 121
 - (c) 605
 - (d) 550
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Q19–Q20 Assertion–Reason

Q19.

Assertion (A): The probability of a sure event is 1.

Reason (R): Probability always lies between 0 and 1.

- (a) Both true & R correct explanation
 - (b) Both true but R not explanation
 - (c) A true R false
 - (d) A false R true
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Q20.

Assertion (A): If two triangles are similar, their areas are equal.

Reason (R): Corresponding sides of similar triangles are proportional.

- (a) Both true & R correct explanation
- (b) Both true but R not explanation
- (c) A true R false
- (d) A false R true

Section B (2 × 5 = 10 Marks)**Q21.**

Find HCF of 510 and 92 using Euclid's Division Algorithm.

Q22.

Find 45th term of AP: 3, 8, 13, ...

Q23.

Solve quadratic equation:

$$x^2 - 12x + 35 = 0.$$

Q24.

Find mean of:

11, 22, 33, 44, 55.

Q25.

Find area of sector of circle radius 35 cm, angle 90°.

Section C (3 × 6 = 18 Marks)**Q26.**

Solve pair of equations:

$$3x + 2y = 16$$

$$5x - y = 9$$

Q27.

Prove: Diagonals of rhombus bisect each other at right angle.

Q28.

Find median of grouped data:

Class Frequency

0-10 4

10-20 9

20-30 13

Class Frequency

30–40 11

40–50 3

Q29.

From top of tower 120m high, angle of depression is 30° . Find horizontal distance.

Q30.

Find sum of first 70 terms of AP: 2, 7, 12, ...

Q31.

Find curved surface area of cone radius 14 cm height 24 cm.

Section D (5 × 4 = 20 Marks)

Q32.

Solve quadratic equation by quadratic formula:

$$2x^2 - 5x - 3 = 0.$$

Q33.

Prove Basic Proportionality Theorem.

Q34.

A bag contains 8 red, 7 blue and 5 green balls.

Find probability of selecting:

- (i) Green
- (ii) Not red

Q35.

A solid sphere radius 28 cm is melted into small cylinders radius 2 cm height 7 cm. Find number of cylinders formed.

Section E (Case Study Based) (4 × 3 = 12 Marks)

Q36.

A circular park radius 70 m.

- (i) Find circumference (1)

(ii) Find area (1)

(iii) Cost of fencing at ₹250 per metre (2)

Q37.

Grouped data of marks given.

Find mean using step deviation method.

Q38.

A ladder 75m long makes 45° angle with ground.

(i) Find height reached (1)

(ii) Distance from wall (1)

(iii) Verify $1 + \tan^2\theta = \sec^2\theta$ (2)
