

Class 10th Maths Sample Paper 3 Full Syllabus PYQs 2026

Time Allowed: 3 hours

Maximum Marks : 80

General Instructions:

Read the following instructions carefully and follow them:

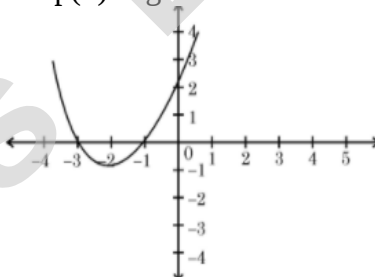
- This question paper contains 38 questions.
- This Question Paper is divided into 5 Sections A, B, C, D and E.
- In Section A, Questions no. 1 – 18 are multiple choice questions (MCQs) and questions no. 19 and 20 are Assertion – Reason based questions of 1 mark each.
- In Section B, Questions no. 21 – 25 are very short answer (VSA) type questions, carrying 02 marks each.
- In Section C, Questions no. 26 – 31 are short answer (SA) type questions, carrying 03 marks each.
- In Section D, Questions no. 32 – 35 are long answer (LA) type questions, carrying 05 marks each.
- In Section E, Questions no. 36 – 38 are case study – based questions carrying 4 marks each with sub – parts of the values of 1, 1 and 2 marks each respectively.
- All Questions are compulsory. However, an internal choice in 2 Questions of Section B, 2 Questions of Section C and 2 Questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
- Draw neat and clean figures wherever required.
- Take $\pi = 22/7$ wherever required if not stated.
- Use of calculators is not allowed.

Section A

1. HCF of $(3^4 \times 2^2 \times 7^3)$ and $(3^2 \times 5 \times 7)$ is:

- a) 567 b) 63 c) 729 d) 630

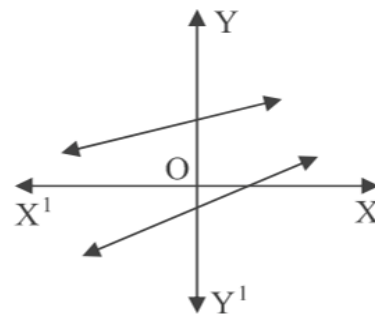
2. In the figure, the graph of the polynomial $p(x)$ is given. The number of zeroes of the polynomial is:



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

3. In the given figure, graphs of two linear equations are shown. The pair of these linear equations is:

- consistent with infinitely many solutions.
- inconsistent but can be made consistent by extending these lines.
- consistent with unique solution.
- inconsistent.



4. The roots of the quadratic equation $ax^2 + bx + c = 0$ are real and distinct, if:

- a) $b^2 - 4ac = 0$ b) $b^2 - 4ac > 0$ c) $b^2 - 4ac \geq 0$ d) $b^2 - 4ac < 0$

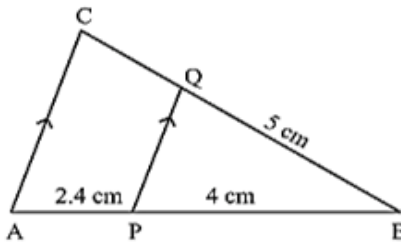
5. The common difference of an A.P. whose n^{th} term is given by $a_n = 5n - 1$, is:

- a) 6 b) 5 c) 4 d) 1

6. If $(3, -6)$ is the mid – point of the line segment joining $(0, 0)$ and (x, y) , then the point (x, y) is:
 a) $(6, -6)$ b) $\left(\frac{3}{2}, -3\right)$ c) $(6, -12)$ d) $(-3, 6)$

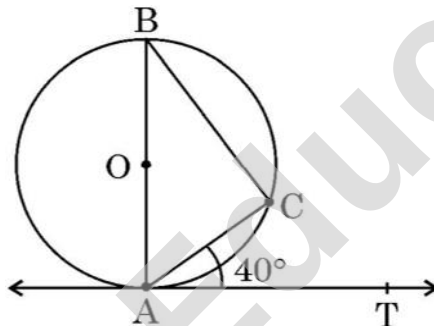
7. Distance of the point $(a \cos \theta, a \sin \theta)$ from origin is:
 a) a^2 b) $\pm a$ c) a d) 1

8. In the given figure, $PQ \parallel AC$. If $BP = 4$ cm, $AP = 2.4$ cm and $BQ = 5$ cm, then length of BC is:



- a) 8 cm b) $\frac{25}{3}$ cm c) 0.3 cm d) 3 cm

9. In the given figure, AT is tangent to a circle centred at O . If $\angle CAT = 40^\circ$, then $\angle CBA$ is equal to



- a) 65° b) 70° c) 40° d) 50°

10. How many tangents can be drawn to a circle from a point on it?
 a) Infinite b) One c) Two d) Zero

11. $\frac{\operatorname{cosec}^2 A - \cot^2 A}{1 - \sin^2 A}$ is equal to
 a) $\cos^2 A$ b) $\sec^2 A$ c) $\tan^2 A$ d) $\sin^2 A$

12. $\left(\frac{1 - \tan^2 30^\circ}{1 + \tan^2 30^\circ}\right)$ is equal to:
 a) $\tan 60^\circ$ b) $\cos 60^\circ$ c) $\sin 60^\circ$ d) $\cos 30^\circ$

13. A vertical pole 10 m long casts a shadow of length 5 m on the ground. At the same time, a tower casts a shadow of length 12.5 m on the ground. The height of the tower is:

- a) 24 m b) 22 m c) 25 m d) 20 m

14. The area of a sector of a circle of radius 16 cm cut off by an arc, which is 18.5 cm long, is:

- a) 148 cm^2 b) 154 cm^2 c) 176 cm^2 d) 168 cm^2

15. The area of a sector of angle α (in degrees) of a circle with radius R is:

- a) $\frac{\alpha}{180} \times \pi R^2$ b) $\frac{\alpha}{180} \times 2\pi R$ c) $\frac{\alpha}{360} \times 2\pi R$ d) $\frac{\alpha}{360} \times \pi R^2$

16. A card is drawn at random from a well – shuffled pack of 52 cards. The probability that the card drawn is not an ace is:

- a) $\frac{12}{13}$ b) $\frac{1}{13}$ c) $\frac{9}{13}$ d) $\frac{4}{13}$

17. From a well – shuffled deck of 52 cards, a card is drawn at random. What is the probability of getting king of hearts?

- a) $\frac{4}{5}$ b) 0 c) $\frac{2}{5}$ d) $\frac{1}{5}$

18. For the following distribution:

Class	60-70	70-80	80-90	90-100	100-110
Frequency	13	10	15	8	11

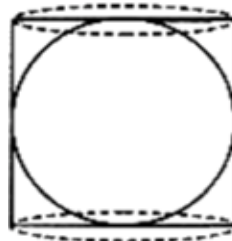
the lower limit of the modal class is

- a) 70 b) 80 c) 100 d) 90

19. **Assertion (A):** In the given figure, a sphere is inscribed in a cylinder. The surface area of the sphere is not equal to the curved surface area of the cylinder.

Reason (R): Surface area of sphere is $4\pi r^2$

- a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.



20. **Assertion (A):** a, b, c are in A.P. if and only if $2b = a + c$.

Reason (R): The sum of first n odd natural numbers is n^2 .

- a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

Section B

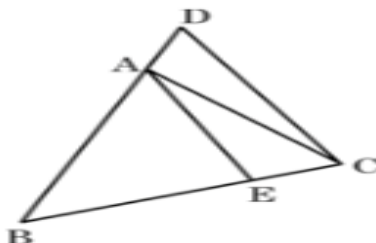
21. Prove that: $\frac{\tan\theta - \cot\theta}{\sin\theta \cos\theta} = \sec^2\theta - \operatorname{cosec}^2\theta$

OR

Evaluate: $\frac{5\cos^2 60^\circ + 4\sec^2 30^\circ - \tan^2 45^\circ}{\sin^2 30^\circ + \sin^2 60^\circ}$

22. Check whether the number 4^n can end with digit 0 for any natural number n. Give reasons for your answer.

23. In the given figure, $\angle ABC = \angle ACB$ and $\frac{BC}{BE} = \frac{BD}{AC}$. Show that $\angle ABE \sim \angle DBC$ and $AE \parallel DC$.

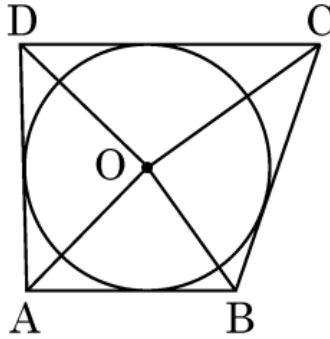


24. Find the area of the sector of a circle of radius 7 cm and of central angle 90° . Also, find the area of corresponding major sector.

OR

In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. Find the area of the sector formed by the arc. Also, find the length of the arc.

25. In the given figure, AB, BC, CD and DA are tangents to the circle with centre O forming a quadrilateral ABCD. Show that $\angle AOB + \angle COD = 180^\circ$



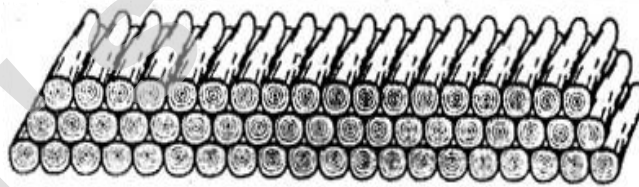
Section C

26. Prove that $(3 + \sqrt{2})$ is irrational.

27. If α, β are zeroes of the quadratic polynomial $x^2 + 3x + 2$, find a quadratic polynomial whose zeroes are $\alpha + 1, \beta + 1$.

28. If $\sin(A - B) = \frac{1}{2}, \cos(A + B) = \frac{1}{2}, 0^\circ < A + B \leq 90^\circ, A > B$, find the values of A and B.

29. 200 logs are stacked in the following manner: 20 logs in the bottom row, 19 in the next row, 18 in the row next to it and so on. In how many rows are the 200 logs placed and how many logs are in the top row?



OR

If p^{th} term of an A.P. is q and the q^{th} term is p, show that its n^{th} term is $(p + q - n)$.

30. Find the mean of the following data using step – deviation method:

Class	500 - 520	520 - 540	540 - 560	560 - 580	580 - 600	600 - 620
Frequency	14	9	5	4	3	5

31. Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line – segment joining the points of contact at the centre.

OR

Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2 \angle OPQ$.

Section D

32. From the top of a building 60 m high, the angles of depression of the top and bottom of the vertical lamp post are observed to be 30° and 60° respectively.

- Find the horizontal distance between the building and the lamp post.
- Find the distance between the tops of the building and the lamp post.

33. The following table gives the marks obtained by 50 students in a class test:

Marks	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50
Number of students	2	3	6	7	14	12	4	2

Calculate the mean and median for the above data.

34. Solve: $\frac{1}{x-2} + \frac{2}{x-1} = \frac{6}{x}$; $x \neq 0, 1, 2$

OR

The hypotenuse (in cm) of a right angled triangle is 6 cm more than twice the length of the shortest side. If the length of third side is 6 cm less than thrice the length of shortest side, then find the dimensions of the triangle.

35. A solid iron pole consists of a solid cylinder of height 200 cm and base diameter 28 cm, which is surmounted by another cylinder of height 50 cm and radius 7 cm. Find the mass of the pole, given that 1 cm^3 of iron has approximately 8 g mass.

OR

A solid toy is in the form of a hemisphere surmounted by a right circular cone. The height of cone is 4 cm and the diameter of the base is 8 cm. Determine the volume of the toy. If a cube circumscribes the toy, then find the difference of the volumes of cube and the toy. Also, find the total surface area of the toy.

Section E

36. Read the following text carefully and answer the questions that follow:

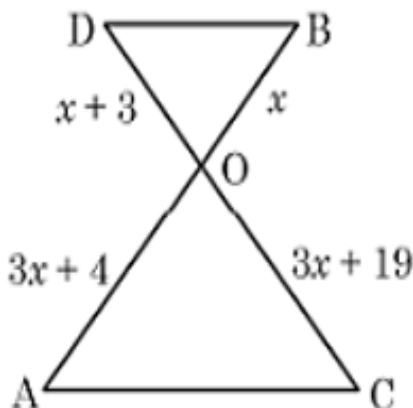
Two schools **P** and **Q** decided to award prizes to their students for two games of Hockey ₹ x per student and Cricket ₹ y per student. School **P** decided to award a total of ₹ 9,500 for the two games to 5 and 4 students respectively; while school **Q** decided to award ₹ 7,370 for the two games to 4 and 3 students respectively.



- Represent the following information algebraically (in terms of x and y). (1)
- What is the prize amount for hockey? (2) OR Prize amount on which game is more and by how much? (2)
- What will be the total prize amount if there are 2 students each from two games? (1)

37. Read the following text carefully and answer the questions that follow:

In the figure given below, a folding table is shown:



The legs of the table are represented by line segments AB and CD intersecting at O. Join AC and BD. Considering table top is parallel to the ground, and $OB = x$, $OD = x + 3$, $OC = 3x + 19$ and $OA = 3x + 4$, answer the following questions:

- Prove that $\triangle OAC$ is similar to $\triangle OBD$.
 - Prove that $\frac{OA}{AC} = \frac{OB}{BD}$
 - Find the followings
 - Observe the figure and find the value of x . Hence, find the length of OC.
- OR**
- Observe the figure and find $\frac{BD}{AC}$.

38. Read the following text carefully and answer the questions that follow:

To raise social awareness about the hazards of smoking, a school decided to start a 'No smoking' campaign. 10 students are asked to prepare campaign banners in the shape of a triangle. The vertices of one of the triangles are $P(-3, 4)$, $Q(3, 4)$ and $R(-2, -1)$.



- What are the coordinates of the centroid of $\triangle PQR$? (1)
 - If T be the mid – point of the line joining R and Q, then what are the coordinates of T? (1)
 - If U be the mid – point of line joining R and P, then what are the coordinates of U? (2)
- OR**
- What are the coordinates of centroid of $\triangle STU$? (2)
