

Class 10th Maths Standard Sample Paper 1 Full Syllabus 2026

Time Allowed: 3 hours

Maximum Marks : 80

General Instructions:

Read the following instructions carefully and follow them:

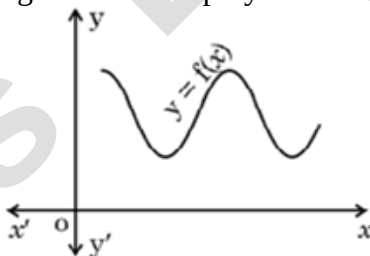
- This question paper contains 38 questions.
- This Question Paper is divided into 5 Sections A, B, C, D and E.
- In Section A, Questions no. 1 – 18 are multiple choice questions (MCQs) and questions no. 19 and 20 are Assertion – Reason based questions of 1 mark each.
- In Section B, Questions no. 21 – 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. If $3825 = 3^x \times 5^y \times 17^z$, then the value of $x + y - 2z$ is:

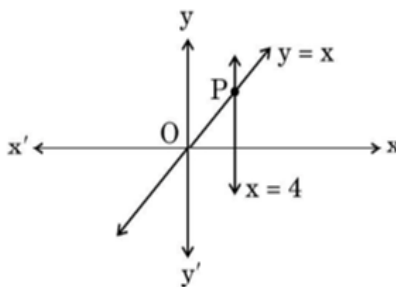
- a) 1 b) 3 c) 0 d) 2

2. The graph of $y = f(x)$ is shown in the figure for some polynomial $f(x)$. The number of zeroes of $f(x)$ is



- a) 2 b) 0 c) 3 d) 4

3. The lines represented by the linear equations $y = x$ and $x = 4$ intersect at P. The coordinates of the point P are:



- a) (4, 4) b) (-4, 4) c) (4, 0) d) (0, 4)

4. The discriminant of the quadratic equation $x^2 - 4x + 3 = 0$ is:

- a) 4 b) -8 c) 2 d) 28

5. In an A.P., if $a_m = \frac{1}{n}$ and $a_n = \frac{1}{m}$, then $a_{mn} =$

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

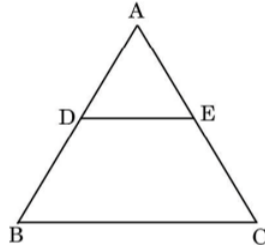
6. The distance between the points $(0, 0)$ and $(a - b, a + b)$ is

- a) $2\sqrt{ab}$ b) $\sqrt{2a^2 + ab}$ c) $2\sqrt{a^2 + b^2}$ d) $\sqrt{2a^2 + 2b^2}$

7. The centre of a circle is at $(2, 0)$. If one end of a diameter is at $(6, 0)$, then the other end is at:

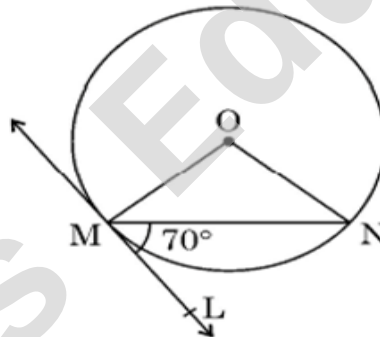
- a) $(-2, 0)$ b) $(4, 0)$ c) $(0, 0)$ d) $(-6, 0)$

8. In the given figure, ABC is a triangle in which $AD = 1.6$ cm, $BD = 4.8$ cm, $AE = 1.1$ cm and $EC = 2.2$ cm. Then:



- a) $DE \parallel BC$ b) DE is not parallel to BC c) $DE = BC$ d) $DE = \frac{1}{2} BC$

9. In the given figure, O is the centre of the circle. MN is the chord and the tangent ML at point M makes an angle of 70° with MN. The measure of $\angle MON$ is:



- a) 90° b) 140° c) 70° d) 120°

10. The length of the tangent from an external point P to a circle of radius 5 cm is 10 cm. The distance of the point from the centre of the circle is

- a) $\sqrt{125}$ b) $\sqrt{104}$ cm c) 8 cm d) 12 cm

11. If $\tan A = \frac{2}{5}$, then the value of $\frac{1 - \cos^2 A}{1 - \sin^2 A}$ is:

- a) $\frac{4}{5}$ b) $\frac{4}{25}$ c) $\frac{5}{4}$ d) $\frac{25}{4}$

12. If $5 \tan \theta - 4 = 0$, then the value of $\frac{5 \sin \theta - 4 \cos \theta}{5 \sin \theta + 4 \cos \theta}$ is

- a) $\frac{1}{6}$ b) 0 c) $\frac{5}{3}$ d) $\frac{5}{6}$

13. The angles of depression of two ships from the top of a lighthouse are 45° and 30° towards east. If the ships are 100 m apart, the height of the lighthouse is

- a) $50(\sqrt{3} - 1)$ m b) $\frac{50}{\sqrt{3}+1}$ m c) $50(\sqrt{3} + 1)$ m d) $\frac{50}{\sqrt{3}-1}$ m

14. If the area of a sector of circle of radius 36 cm is $54\pi \text{ cm}^2$, then the length of the corresponding arc of the sector is:
 a) $5\pi \text{ cm}$ b) $4\pi \text{ cm}$ c) $3\pi \text{ cm}$ d) $2\pi \text{ cm}$
15. The length of the minute hand of a wall clock is 7 cm, then area swept by the minute hand in 10 minutes is
 a) 30 cm^2 b) 30.66 cm^2 c) 28.69 cm^2 d) 25.66 cm^2
16. A card is drawn from a deck of 52 cards. The event E is that card is not an ace of hearts. The number of outcomes favourable to E is
 a) 4 b) 48 c) 51 d) 13
17. Two fair coins are tossed together. The probability of getting 2 heads, is:
 a) $\frac{1}{4}$ b) $\frac{3}{8}$ c) $\frac{3}{4}$ d) $\frac{1}{2}$
18. If the mean and median of a data are 10 and 11 respectively, then mode of the data is:
 a) 8 b) 20 c) 12 d) 13
19. **Assertion (A):** Two identical solid cubes of side 5 cm are joined end to end. The total surface area of the resulting cuboid is 350 cm^2 .
Reason (R): Total surface area of a cuboid is $2(lb + bh + hl)$
 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):** Common difference of the A.P. 5, 1, -3, -7 ... is 4.
Reason (R): Common difference of the A.P. $a_1, a_2, a_3 \dots a_n$ is obtained by $d = a_n - a_{n-1}$.
 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.

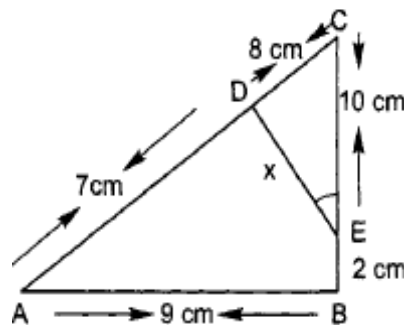
Section B

21. Find the LCM and HCF of the pairs of integers 510 and 92 and verify that $\text{LCM} \times \text{HCF} = \text{product of the two numbers}$.

OR

Prove that $2 + 3\sqrt{3}$ is an irrational number. It is given that $\sqrt{3}$ is an irrational number.

22. In Fig. $\angle A = \angle CED$, prove that $\triangle CAB \sim \triangle CED$. Also, find the value of x.



23. If a circle touches the side BC of a triangle ABC at P and extended sides AB and AC at Q and R, respectively, prove that $AQ = \frac{1}{2}(BC + CA + AB)$

24. Prove that $\frac{\sin A + \cos A}{\sin A - \cos A} + \frac{\sin A - \cos A}{\sin A + \cos A} = \frac{2}{2\sin^2 A - 1}$

OR

Prove that $\frac{\sin \theta - 2\sin^3 \theta}{2\cos^3 \theta - \cos \theta} = \tan \theta$.

25. An arc of a circle of radius 10 cm subtends a right angle at the centre of the circle. Find the area of the corresponding major sector. (Use $\pi = 3.14$)

Section C

26. Prove that $\sqrt{5}$ is an irrational number.

27. If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - 2x + 3$, find a polynomial whose roots are $\alpha + 2, \beta + 2$

28. The median of the distribution given below is 14.4. Find the values of x and y, if the total frequency is 20.

Class interval	0-6	6-12	12-18	18-24	24-30
Frequency	4	x	5	y	1

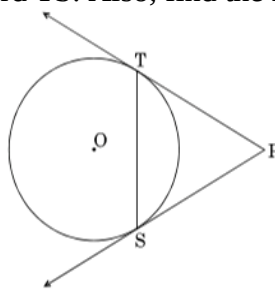
29. Solve: $37x + 41y = 70$; $41x + 37y = 86$

OR

The sum of the digits of a two – digit number is 9. Also, nine times this number is twice the number obtained by reversing the order of the digits. Find the number.

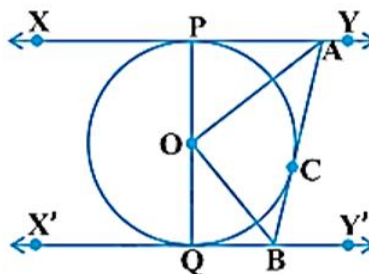
30. Given $15 \cot A = 8$, compute $\cos A$ and $\tan A$.

31. In the given figure, PT and PS are tangents to a circle with centre O, from a point P, such that $PT = 4$ cm and $\angle TPS = 60^\circ$. Find the length of the chord TS. Also, find the radius of the circle.



OR

In Figure, XY and X'Y' are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersects XY at A and X'Y' at B. Prove that $\angle AOB = 90^\circ$.



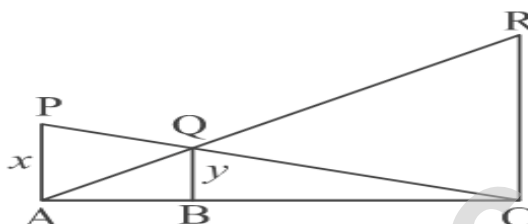
Section D

32. The following table shows the ages of the patients admitted in a hospital during a month:

Age(in years)	6 - 15	16 - 25	26 - 35	36 - 45	46 - 55	56 - 65
Number of patients	6	11	21	23	14	5

Find the mode and the mean of the data given above. Compare and interpret the two measures of central tendency.

33. In the given figure PA, QB and RC are each perpendicular to AC. If $AP = x$, $BQ = y$ and $CR = z$, then prove that $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$



34. Two pipes together can fill a tank in $\frac{15}{8}$ hours. The pipe with larger diameter takes 2 hours less than the pipe with smaller diameter to fill the tank separately. Find the time in which each pipe can fill the tank separately.

OR

A train travels at a certain average speed for a distance of 360 km. It would have taken 48 minutes less to travel the same distance if its speed was 5 km/hour more. Find the original speed of the train.

35. A toy is in the form of a cone mounted on a hemisphere. The diameter of the base of the cone is 7 cm and its height is 15.5 cm. Find the volume of the toy. (Use $\pi = 3.14$).

OR

A solid is in the shape of a hemisphere surmounted by a cone. If the radius of hemisphere and base radius of cone is 7 cm and height of cone is 3.5 cm, find the volume of the solid. (Take $\pi = \frac{22}{7}$)

Section E

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

Deepa has to buy a scooty. She can buy scooty either making cashdown payment of ₹ 25,000 or by making 15 monthly instalments as below.

Ist month – ₹ 3425, IInd month – ₹ 3225, Illrd month – ₹ 3025, IVth month – ₹ 2825 and so on



- Find the amount of 6th instalment.
- Total amount paid in 15 instalments.

(1)

(1)

- c. Deepa paid 10th and 11th instalment together find the amount paid that month. (2)

OR

- If Deepa pays ₹ 2625 then find the number of instalment. (2)

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

In an examination hall, students are seated at a distance of 2 m from each other, to maintain the social distance due to CORONA virus pandemic. Let three students sit at points A, B and C whose coordinates are $(4, -3)$, $(7, 3)$ and $(8, 5)$ respectively.



- What is the distance between A and C? (1)
- If an invigilator at point I, lying on the straight line joining B and C such that it divides the distance between them in the ratio of 1 : 2. Then what are the coordinates of I (invigilator)? (1)
- What is the mid – point of the line segment joining A and C? (2)

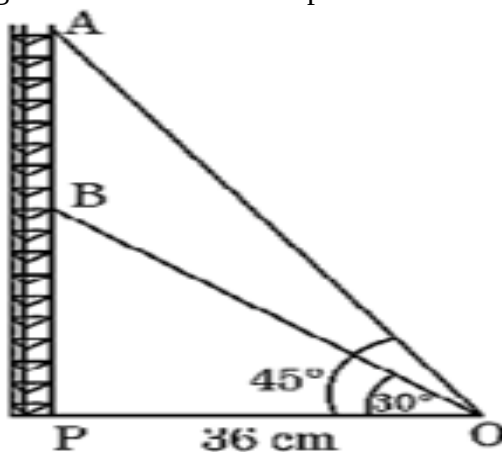
OR

- What is the ratio in which B divides the line segment joining A and C? (2)

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

Radio towers are used for transmitting a range of communication services including radio and television. The tower will either act as an antenna itself or support one or more antennas on its structure. On a similar concept, a radio station tower was built in two Sections A and B. Tower is supported by wires from a point O.

Distance between the base of the tower and point O is 36 cm. From point O, the angle of elevation of the top of the Section B is 30° and the angle of elevation of the top of Section A is 45° .



- Find the length of the wire from the point O to the top of Section B. (1)
- Find the distance AB. (2) **OR** Find the area of $\triangle OPB$. (2)
- Find the height of the Section A from the base of the tower. (1)