

REVISION EXAMINATION : 2025-26

CLASS : X

SUBJECT : MATHEMATICS

10125

Time Allowed: 3 Hours

Max. Marks : 80

General Instructions:

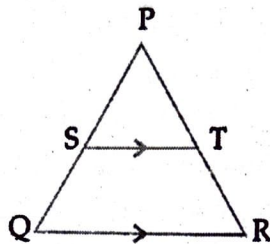
1. This Question Paper has 5 Sections A, B, C, D, and E.
2. Section A has 20 Multiple Choice Questions (MCQs) carrying 1 mark each.
3. Section B has 5 questions carrying 2 marks each.
4. Section C has 6 questions carrying 3 marks each.
5. Section D has 4 questions carrying 5 marks each.
6. Section E has 3 Case Based integrated units of assessment (4 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 2 Qs of 2 marks, 2 Qs of 3 marks and 2 Questions of 5 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

SECTION - A

Section A consists of 20 questions of 1 mark each.

1. If $a = 2^2 \times 3^x$, $b = 2^2 \times 3 \times 5$, $c = 2^2 \times 3 \times 7$ and LCM (a, b, c) = 3780, then x is equal to 1
(a) 1 (b) 2
•(c) 3 (d) 0
Handwritten: $2^2 \times 3 \times 5$
2. A quadratic polynomial whose sum and product of zeroes are $\frac{1}{4}$ and -1 respectively is 1
(a) $4x^2 + x - 4$ (b) $4x^2 - x - 4$
(c) $x^2 + 4x - 4$ (d) $x^2 - 4x - 4$
3. If the system of equations $7x + 3y - 5 = 0$ and $7px + (p + q)y - 10 = 0$ has infinitely many solutions, then 1
•(a) $2p - q = 0$ (b) $p + 2q = 0$
(c) $q - p = 0$ (d) $2p + q = 0$
4. The value of a for which $ax^2 + x + a = 0$ has equal and positive roots is 1
(a) 2 (b) -2
(c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

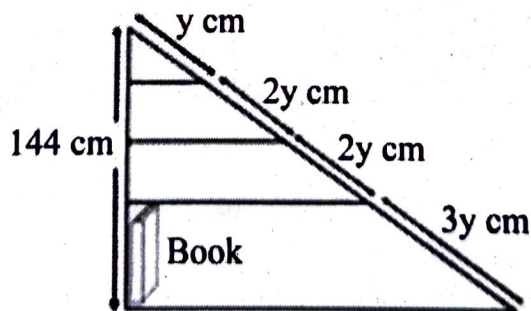
5. In an AP, if $d = -4$, $n = 7$, $a_n = 4$, then a is 1
- (a) 6 (b) 7
(c) 20 (d) 28
6. If A is a point on the y axis whose ordinate is 5 and B is the point $(-3, 1)$, then the length of AB is 1
- (a) 8 units (b) 5 units
(c) 3 units (d) 25 units
7. In the following figure, $ST \parallel QR$, point S divides PQ in the ratio 4:5. If $ST = 1.6$ cm, what is the length of QR ? 1



- (a) 0.71 cm
(b) 2 cm
(c) 3.6 cm
(d) cannot be calculated from the given data.

8. Meena has a triangular cabinet that fits under her staircase. There are four parallel shelves as shown below.

The total height of the cabinet is 144 cm. What is the maximum height of a book that can stand upright on the bottom-most shelf? 1



- (a) 18 cm (b) 36 cm
(c) 54 cm (d) 86.4 cm

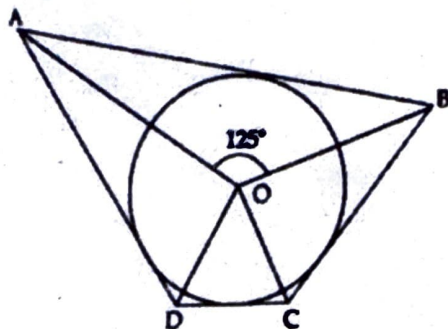
9. If radii of two concentric circles are 4 cm and 5 cm, then the length of chord of one circle which is tangent to the other circle is 1

- (a) 3 cm (b) 9 cm
(c) 6 cm (d) 1 cm

10.

In the figure, if $\angle AOB = 125^\circ$, then $\angle COD$ is equal to

1

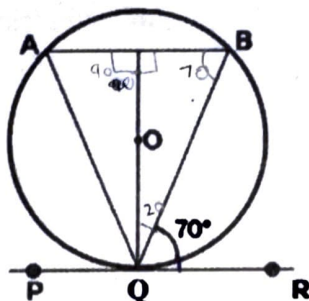


- (a) 62.5°
- (b) 45°
- (c) 35°
- (d) 55°

11.

In figure, if PQR is the tangent to a circle at Q, whose centre is O, AB is a chord parallel to PR and $\angle BQR = 70^\circ$, then $\angle AQB$ is equal to

1



- (a) 20°
- (b) 40°
- (c) 35°
- (d) 45°

0 30 45 60 90
 sin 0 1/2 1/2 1
 cos 1 sqrt(3)/2 1/2 0

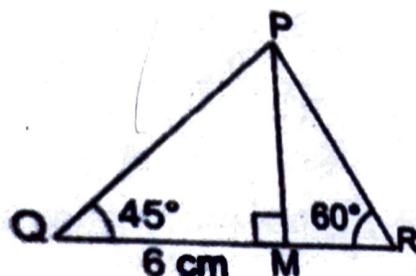
12. If $\sin \alpha = \frac{1}{2}$ and $\cos \beta = \frac{1}{2}$, then the value of $(\alpha + \beta)$ is

1

- (a) 0°
- (b) 30°
- (c) 60°
- (d) 90°

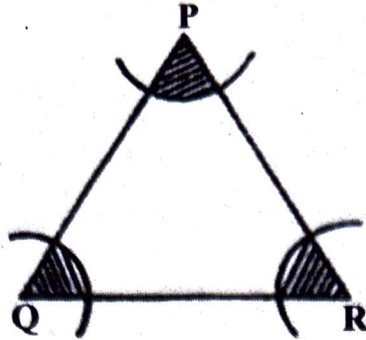
13. In the given figure, value of MR is

1



- (a) $2\sqrt{3}$ cm
- (b) 6 cm
- (c) $3\sqrt{2}$ cm
- (d) 1.5 cm

14. In the adjoining figure, arcs have been drawn with radii 14 cm (each) with centres P, Q and R. Find the area of the shaded region. 1



- (a) 260 cm^2 (b) 380 cm^2
 (c) 308 cm^2 •(d) 420 cm^2
15. The volume of the greatest sphere cut off from a circular cylindrical wood of base radius 1 cm and height 6 cm is 1

- (a) $288\pi \text{ cm}^3$ •(b) $\frac{4}{3} \pi \text{ cm}^3$
 (c) $6\pi \text{ cm}^3$ (d) $4\pi \text{ cm}^3$

16. While computing mean of grouped data, we assume that the frequencies are 1

- (a) evenly distributed all over the classes.
 (b) centered at the class marks of the classes.
 (c) centered at the upper limits of the classes.
 (d) centered at the lower limits of the classes.

17. Cards marked with numbers 3, 4, 5,.....50 are placed in a bag and mixed thoroughly. One card is drawn at random from the bag, then the probability that the number on the card is a perfect square, is 1

- (a) $\frac{1}{8}$ (b) $\frac{1}{6}$
 (c) $\frac{7}{48}$ (d) $\frac{5}{48}$

18. 2 cards of hearts and 4 cards of spades are missing from pack of 52 cards. What is the probability of getting a black card from the remaining pack? 1

- (a) $\frac{22}{52}$ •(b) $\frac{22}{46}$
 (c) $\frac{24}{52}$ (d) $\frac{24}{46}$

In the question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

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

19. Assertion: The points A(-1,0) ; B(3,1) ; C(2,2) and D(-2,1) are the vertices of a parallelogram.

Reason: The coordinates of the mid point of both the diagonals AC and BD are $(\frac{1}{2}, -1)$ 1

20. Assertion : If the length of shadow of a vertical pole is equal to its height, then the angle of elevation of the sun is 45° . 1

Reason : As the length of shadow decreases, the angle of elevation of sun increases.

SECTION - B

Section B consists of 5 questions of 2 marks each.

21. The LCM of two numbers is fourteen times of their HCF. The sum of LCM and HCF is 600. If one number is 280, then find the other number. 2

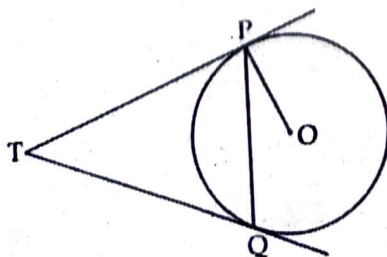
22. (A) If m and n are zeroes of the polynomial $3x^2 + 11x - 4$, find the value of $\frac{m}{n} + \frac{n}{m}$. 2

OR

(B) Form a quadratic polynomial whose one zero is 8 and the product of zeroes is -56.

23. How many terms of the AP 27, 24, 21,..... should be taken so that their sum is zero? 2

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



OR

- (B) 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.

25. In ΔABC , right angled at B, prove that $\sin^2 A + \cos^2 A = 1$, $0^\circ \leq A \leq 90^\circ$. 2

SECTION - C

Section C consists of 6 questions of 3 marks each.

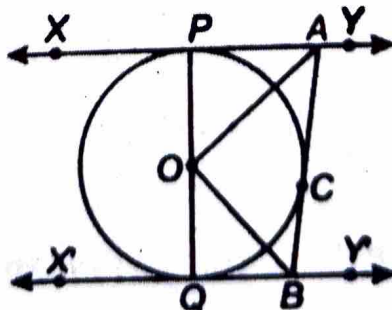
26. Prove that $\sqrt{3}$ is an irrational number. 3

27. (A) There are some students in two examinations halls A and B. To make the number of students equal in each hall, 10 students were sent from hall A to hall B. But if 20 students are sent from B to A, the number of students in A becomes double the number of students in B. Find the number of students in two halls. 3

OR

- (B) Riya invested certain amount of money in two schemes A and B, which offer interest at the rate ₹8 per annum and ₹9 per annum respectively. She received ₹1860 as interest. However, had she interchanged the amount invested in the two schemes, she would have received ₹20 more as annual interest. How much did she invest in each scheme? 3

28. In the given figure, XY and X'Y' are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X'Y' at B. Prove that $\angle AOB = 90^\circ$. 3

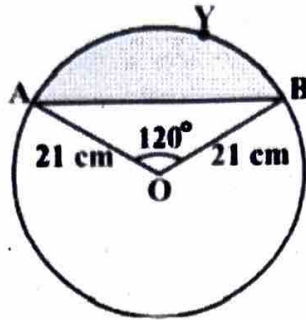


29. (A) Find the value of $\sin 60^\circ$ geometrically. 3

OR

- (B) Prove : $(\sin \theta + \cos \theta + 1)(\sin \theta - 1 + \cos \theta) \sec \theta \operatorname{cosec} \theta = 2$ 3

30. Find the area of the segment AYB (shown in the figure), if radius of the circle is 21 cm and $\angle AOB = 120^\circ$. 3



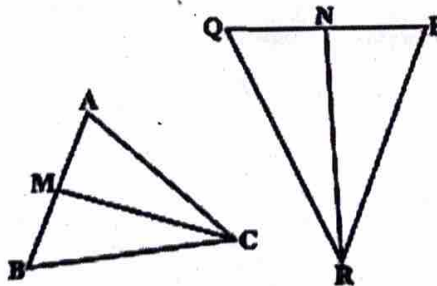
31. In a game, the entry fee is ₹ 5. The game consists of tossing a coin three times. If one or two heads show, Seema gets her entry fee back. If she throws 3 heads, she receives double the entry fees. Otherwise she will lose. For tossing a coin three times, find the probability that she 3

- (i) loses the entry fee. (ii) gets double entry fee.
 (iii) just gets her entry fee.

SECTION - D

Section D consists of 4 questions of 5 marks each.

32. Two taps running together can fill a tank in $3\frac{1}{13}$ hours. If one tap takes 3 hours more than the other to fill the tank, then find the time in which each tap would fill the tank. 5
33. CM and RN are respectively the medians of $\triangle ABC$ and $\triangle PQR$. If $\triangle ABC \sim \triangle PQR$, prove that : 5



- (i) $\triangle AMC \sim \triangle PNR$ (ii) $\frac{CM}{RN} = \frac{AB}{PQ}$
 (iii) $\triangle CMB \sim \triangle RNQ$

OR

In trapezium ABCD, $AB \parallel DC$, $DC = 2AB$. EF drawn parallel to AB cuts AD in F and BC in E such that $\frac{BE}{EC} = \frac{3}{4}$. Diagonal DB intersects EF at G. Prove that $7FE = 10AB$. 5

34. (A) A solid iron pole consists of a cylinder of height 220 cm and base diameter 24 cm, which is surmounted by the another cylinder of height 60 cm and radius 8 cm. Find mass of the pole, given that 1 cm^3 of iron has approximately 8 g mass. (Use $\pi = 3.14$) 5

OR

- (B) From a solid cylinder whose height is 8 cm and radius is 6 cm, a conical cavity of same height and same base is hollowed out. Find the total surface area and volume of the remaining solid. (Use $\pi = 3.14$) 5

35. A survey regarding heights (in cm) of girls of class X of a school was conducted and the following data was obtained. 5

Height (in cm)	Less than 140	Less than 145	Less than 150	Less than 155	Less than 160	Less than 165
Number of girls	04	11	29	40	46	51

Find the median and mode of the above distribution. Also, find the mean using empirical formula.

SECTION - E

Section E consists of 3 case study-based questions of 4 marks each.

36. A survey was conducted in the month of December to estimate the overall sale of paracetamols by each pharmacy during the last 7 days. It was observed that the number of paracetamols sold by different shops were all 3 digit numbers divisible by 12, taken in order.

Based on the above information, answer the following questions.



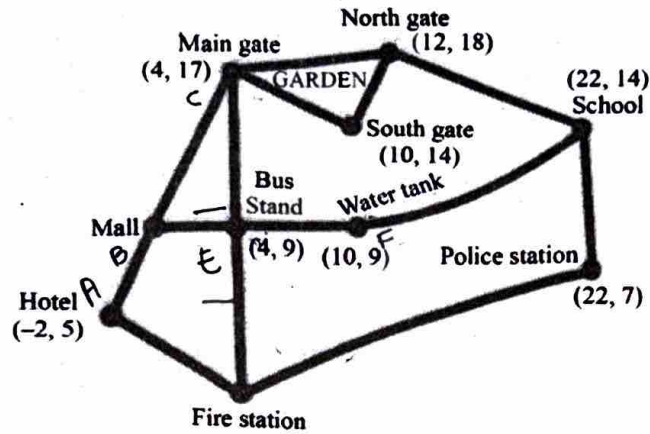
- (i) How many paracetamols were sold by the 7th pharmacy ? 1
- (ii) What was the difference between the number of paracetamols sold by the 12th and the 9th pharmacy? 1
- (iii) (A) How many paracetamols were sold by the 11th pharmacy from the last ? 2

OR

- (iii) (B) What was the total number of paracetamols sold in that week ? 2

37. Shown below is a map of Amit's neighbourhood. Amit did a survey of his neighbourhood and collected the following information :

- (a) The hotel, mall and the main gate of the garden lie in a straight line. *(collinear)*
- (b) The distance between the hotel and the mall is half the distance between the mall and the main gate of the garden.
- (c) The bus stand is exactly midway between the main gate of the garden and the fire station.
- (d) The mall, bus stand and the water tank lie in a straight line. *(collinear)*



$$AB = \frac{BC}{2}$$

Based on the above information, answer the following questions.

- (i) What are the coordinates of the fire station ? 1
- (ii) What is the shortest distance between the water tank and the school ? 1
- (iii) (A) Amit proposed a plan to install a fountain such that its distance from the south gate is twice the distance from the mid point of main gate and the north gate. Find the coordinates of the fountain. 2

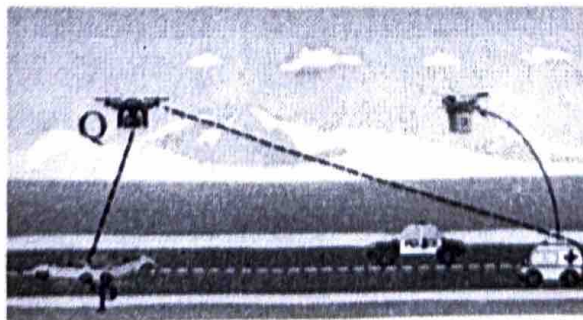
OR



- (B) What is the distance between mall and bus stand ? 2

38. A drone is used to facilitate movement of an ambulance on the straight highway to a point P on the ground where there is an accident.

The ambulance is travelling at the speed of 60 km/hr. The drone stopped at a point Q, 100 m vertically above the point P. The angle of depression of the ambulance was found to be 30° at a particular instant.



Based on the above information, answer the following questions.

- (i) Represent the above situation with the help of a figure. 1
- (ii) Find the distance between the ambulance and the site of accident (P) at a particular instant. (Use $\sqrt{3} = 1.73$) 1
- (iii) (A) Find the time (in seconds) in which the angle of depression changes from 30° to 45° . 2

OR

- (iii) (B) How long (in seconds) will the ambulance take to reach the point P from a point T on the highway such that angle of depression of the ambulance at T is 60° from the drone ? 2