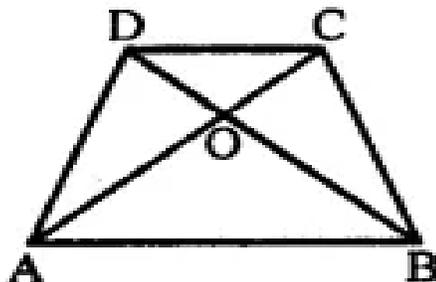
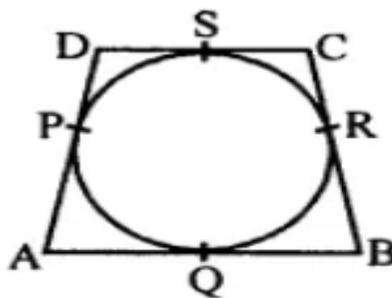


7. In the given figure, ABCD is a trapezium whose diagonals AC and BD intersect at O such that OA = (3x - 1) cm, OB = (2x + 1) cm, OC = (5x - 3) cm and OD = (6x - 5) cm. Then, x = ?

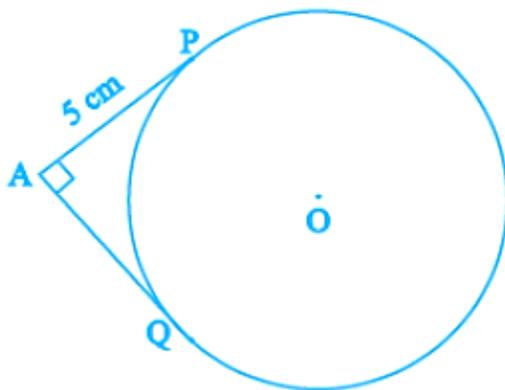


- a) 4 b) 2 c) 3.5 d) 3
8. The distance of the point (4, 7) from the y-axis is
a) 11 b) 4 c) $\sqrt{65}$ d) 7
9. In the fourth quadrant,
a) x is +ve, y is -ve b) x is -ve, y is -ve
c) x is +ve, y is +ve d) x is -ve, y is +ve
10. If $\sin \theta = \frac{\sqrt{3}}{2}$, then $(\operatorname{cosec} \theta + \cot \theta) = ?$
a) $\sqrt{2}$ b) $(2 + \sqrt{3})$ c) $2\sqrt{3}$ d) $\sqrt{3}$
11. If $x \tan 45^\circ \cos 60^\circ = \sin 60^\circ \cot 60^\circ$, then x is equal to
a) $\frac{1}{2}$ b) 1 c) $\frac{1}{\sqrt{2}}$ d) $\sqrt{3}$
12. In the given figure, quad. ABCD is circumscribed, touching the circle at P, Q, R and S. If AP = 5 cm, BC = 7 cm and CS = 3 cm. Then, the length AB = ?



- a) 8 cm b) 9 cm c) 10 cm d) 12 cm
13. The perimeter of a rectangle is 82 m and its area is 400 m^2 . The breadth of the rectangle is
a) 25 m b) 9 m c) 16 m d) 20 m

14. The pair of tangents AP and AQ drawn from an external point to a circle with centre O are perpendicular to each other and length of each tangent is 5 cm. The radius of the circle is



- a) 7.5 cm b) 5 cm c) 10 cm d) 2.5 cm
15. Which one of the following is not a measure of central tendency?
a) variance b) mode c) arithmetic mean d) median
16. For a frequency distribution, mean, median and mode are connected by the relation
a) Mode = 3 Median - 2 Mean b) Mode = 2 Median - 3 Mean
c) Mode = 3 Mean - 2 Median d) Mode = 3 Median + 2 Mean
17. If the probability of an event is 'p', the probability of its complementary event will be
a) p b) p - 1 c) 1 - p d) 1 - 1/p
18. The mode of 4, 5, 6, 8, 5, 4, 8, 5, 6, x, 8 is 8. The value of x is
a) 5 b) 6 c) 8 d) 4

19. **Assertion (A):** No two positive numbers can have 18 as their H.C.F and 380 as their L.C.M.

Reason (R): L.C.M. is always completely divisible by H.C.F.

- 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):** If p is a prime number then H.C.F. of p, p² and p³ is p
Reason (R): H.C.F. of 3 number is smallest number among them
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.

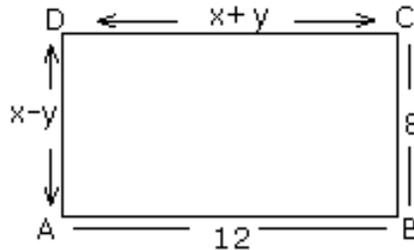
Section B consists of 5 questions of 2 marks each.

21. For what values of k will the following pair of linear equations have infinitely many solutions?

$$kx + 3y - (k - 3) = 0 \text{ \& } 12x + ky - k = 0$$

OR

ABCD is a rectangle if the value of $AB = 12$ is given, find the values of x and y



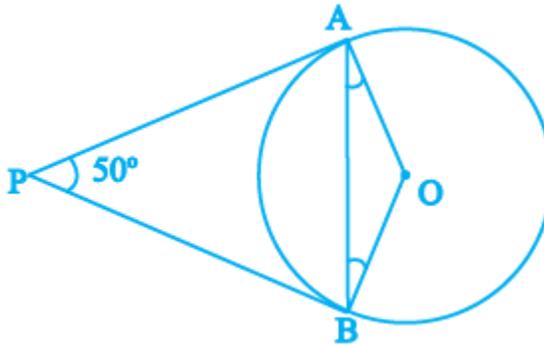
22. Check whether 301 is a term of the list of numbers 5, 11, 17, 23, ...

23. Evaluate : $\frac{\sin 30^\circ + \tan 45^\circ - \operatorname{cosec} 60^\circ}{\sec 30^\circ + \cos 60^\circ + \cot 45^\circ}$

OR

Evaluate : $4(\sin^4 30^\circ + \cos^4 60^\circ) - 3(\cos^2 45^\circ - \sin^2 90^\circ)$

24. In the figure, if PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$, then $\angle OAB$ is equal to



25. Find the diameter of a circle whose area is equal to the sum of the areas of the two circles of radii 24 cm and 7 cm.

Section C consists of 6 questions of 3 marks each.

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

OR

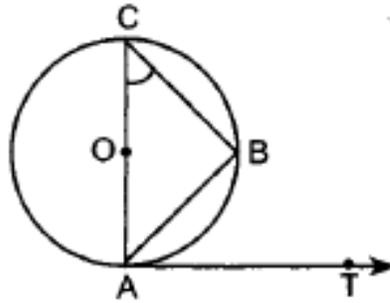
Show that $5 - \sqrt{3}$ is irrational

27. Find the zeroes of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeroes and the coefficients.

28. A shopkeeper gives books on rent for reading. She takes a fixed charge for the first two days, and an additional charge for each day thereafter. Latika paid Rs 22 for a book kept for six days, while Anand paid Rs 16 for the book kept for four days. Find the fixed charges and the charge for each extra day

29. In $\triangle ABC$, right angled at B, if $\tan A = \frac{1}{\sqrt{3}}$. Find the value of $\cos A \cos C - \sin A \sin C$.

30. If AB is a chord of a circle with centre O, AOC is a diameter and AT is the tangent at A as shown in figure. Prove that $\angle BAT = \angle ACB$.



OR

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.

31. A card is drawn at random from a well-shuffled deck of playing cards. Find the probability that the card drawn is :

i. a card of a spade or an ace. ii. neither a jack nor a king. iii. either a king or a queen

Section D consists of 4 questions of 5 marks each.

32. Scooter charges consist of fixed charges and remaining depending upon the distance travelled in km. If a person travel 10 km, he pays Rs 65 and for travelling 16 km he pays Rs 95. Find the fixed charges and rate per km

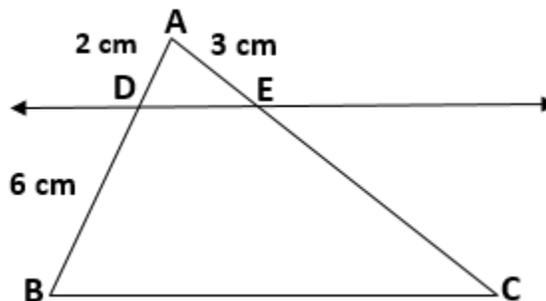
OR

Solve the pairs of linear equation by the elimination method and the substitution method:

$$\frac{x}{2} + \frac{2y}{3} = -1 \quad \& \quad x - \frac{y}{3} = 3$$

33. Prove that If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.

In the figure, find EC if $\frac{AD}{DB} = \frac{AE}{EC}$ using the above theorem.



34. Prove that $\sqrt{\frac{1+\sin \theta}{1-\sin \theta}} + \sqrt{\frac{1-\sin \theta}{1+\sin \theta}} = 2 \sec \theta$

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

| | | | | | |
|-----------------------|-------|--------|---------|---------|---------|
| Class Interval | 0 – 6 | 6 – 12 | 12 – 18 | 18 – 24 | 24 – 30 |
| Frequency | 4 | x | 5 | y | 1 |

OR

Find the mode of the following frequency distribution:

| | | | | | | | | |
|------------------|--------|---------|---------|---------|---------|---------|---------|---------|
| Class | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 | 60 – 70 | 70 – 80 |
| Frequency | 5 | 8 | 7 | 12 | 28 | 20 | 10 | 10 |

Section E Case study-based questions are compulsory.

Consists of 3 questions of 4 marks each.

36. **Case Study 1 :** Sehaj Batra gets pocket money from his father every day. Out of pocket money, he saves money for poor people in his locality. On 1st day he saves ₹27.5 On each succeeding day he increases his saving by ₹2.5

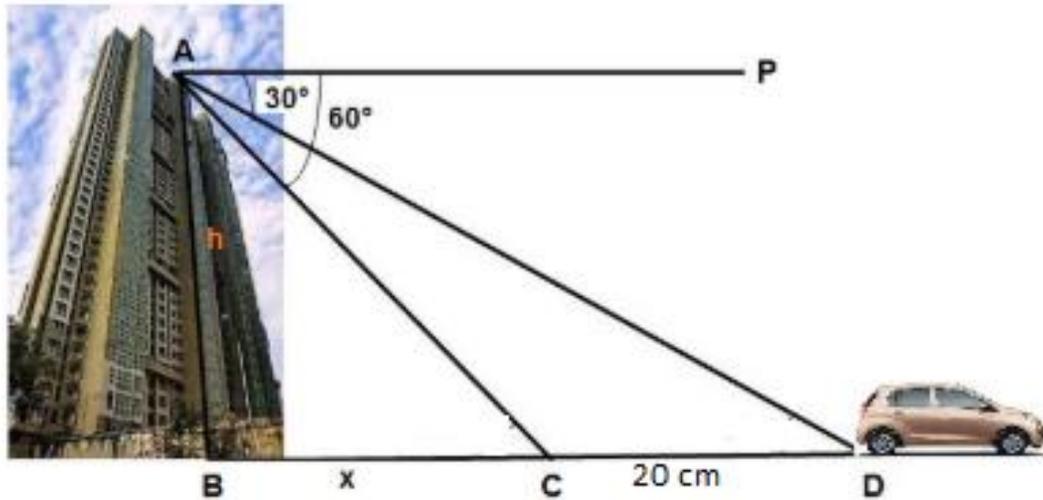


- i. Find the amount saved by Sehaj on 10th day.
- ii. Find the amount saved by Sehaj on 25th day.
- iii. Find the total amount saved by Sehaj in 30 days.

OR

Find in how many days Sehaj saves ₹1400.

- 37. Case Study 2 :** Vijay lives in a flat in a multi-story building. Initially, his driving was rough so his father keeps eye on his driving. Once he drives from his house to Faridabad. His father was standing on the top of the building at point A as shown in the figure. At point C, the angle of depression of a car from the building was 60° . After accelerating 20 m from point C, Vijay stops at point D to buy ice cream and the angle of depression changed to 30° .

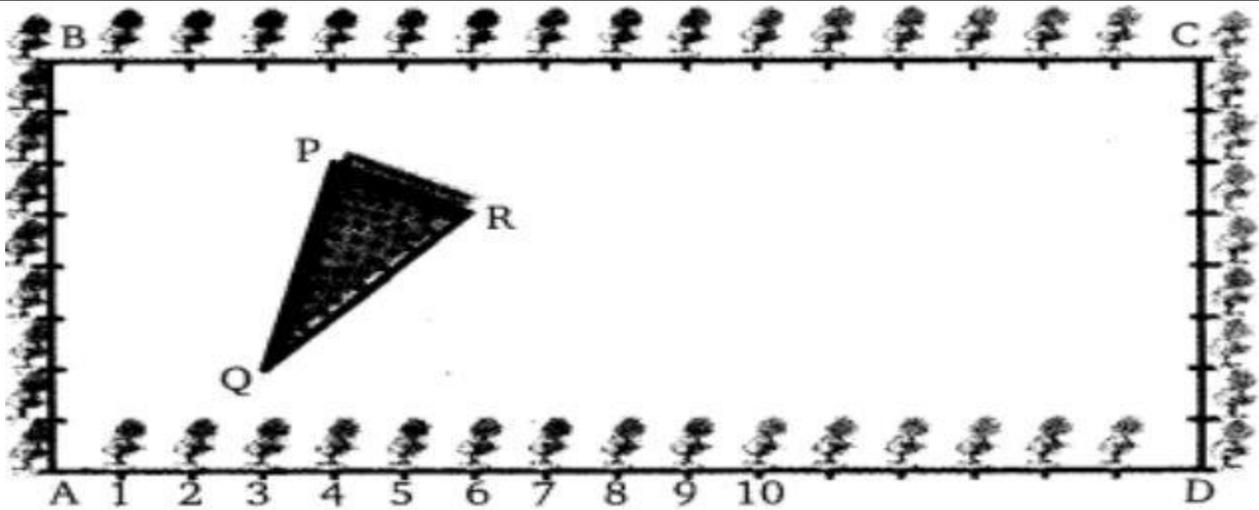


- i. Find the value of x .
- ii. Find the height of the building AB.
- iii. Find the distance between top of the building and a car at position D?

OR

Find the distance between top of the building and a car at position C?

- 38. Case Study 3 :** The class X students school in krishnagar have been allotted a rectangular plot of land for their gardening activity. Saplings of Gulmohar are planted on the boundary at a distance of 1 m from each other. There is triangular grassy lawn in the plot as shown in the figure. The students are to sow seeds of flowering plants on the remaining area of the plot.



- i. What will be the coordinates of R, if C is the origin?
- ii. Find the distance between PR, if A is the origin?
- iii. Find the coordinates of the points which divides the join of P and Q in the ratio 2 : 3., if B is the origin?

OR

Find the coordinates of the points which divides the join of R and Q in the ratio 2 : 3. if D is the origin?