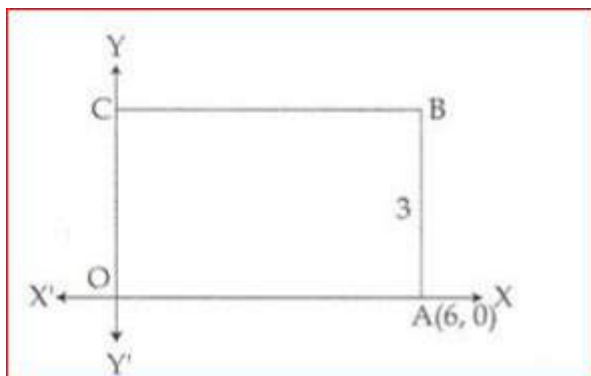
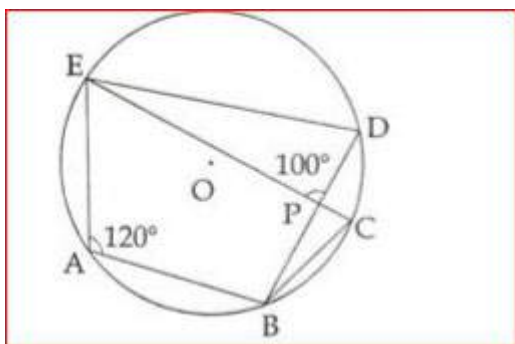


1. In the figure given below OABC is a rectangle and its breadth is 3. Write the coordinates of the vertices B and C.



2. The algebraic form of an arithmetic sequence is  $5n + 3$
- What is the first form of sequence?
  - What will be the remainder if the terms of the sequences are divided by 5?
3. In the figure, 'O' is the centre of the circle and A, B, C, D and E are the points on it.



$\angle EAB = 120^\circ$ ,  $\angle EPD = 100^\circ$ . Write the measures of  $\angle EDB$ ,  $\angle ECB$  and  $\angle DBC$ .

4. Draw a circle of 3cm. Mark a point 7cm away from its centre. Draw tangents to the circle from this point.

5.  $P(x) = x^3 + ax^2 - x + b$  and
- Find the relation between a and b for x-1 to be a factor of P(x)
  - Find the relation between a and b for x-2 to be a factor of P(x)
  - Find a and b so that both x-1 and x-2 are factors of P(x)

6. A circle with centre (3, 4) passes through the origin.

- What is the radius of the circle?
- If a point in the circle is (x, y), write the relation between x, y?
- Check if the point (-2, 1) lies on this circle?

7. A boy saw the top of a building under construction at an elevation of  $30^\circ$ . The completed building was 12 meter higher and the boy saw its top at an elevation of  $60^\circ$  from the same spot.

- Draw a rough figure based on the given details.
- What is the height of the building?
- What is the distance between the building and the boy?

8. Cards marked with numbers 1,2,3,4... 20 are well shuffled and a card is drawn at random. What is the probability that the number on the card is a:

- a. prime number?
- b. divisible by 3?
- c. a perfect square?

9. A person bought a certain number of pens for Rs. 800. If he had bought 4 pens more for the same money, he would have paid 10 less for each pen. How many pens did he buy?

10. A man desires to have an annual income of Rs. 36,000 from 18% Rs. 125 shares available at a premium of 20%. How much should he invest?

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

12. A conical tent is to accommodate 11 persons. Each person must have 4 sq. m of the space on the ground and 20 cubic metre of air to breathe. Find the height of the cone.

13. Mohan has a recurring deposit in a bank, where he deposited Rs.2500 per month for 2 years. If he gets Rs. 66,250 at the time of maturity, find:

- a. The interest paid by the bank
- b. The rate of interest

14. The weekly wages of 40 workers in a small factory is given below. If the mean weekly wage is Rs145, find the value of a and b.

Daily Wages	80-100	100-120	120-140	140-160	160-180
No, Of Workers	4	6	a	b	18

15. Find the value of x, given that  $B^2 = A$ , where.

$$B = \begin{bmatrix} 2 & 12 \\ 0 & 1 \end{bmatrix} \text{ and } A = \begin{bmatrix} 4 & x \\ 0 & 1 \end{bmatrix}$$

16. Construct a  $\triangle ABC$  in which  $AB=AC=5\text{cm}$  and  $BC=6.5\text{cm}$ . Using a ruler and a compass only draw the reflection  $A'BC$  of  $\triangle ABC$  in  $BC$ . Draw lines of symmetry of the figure  $ABA'C$ .