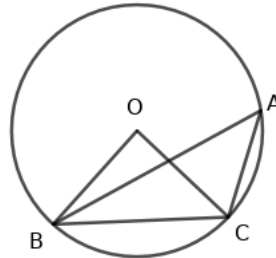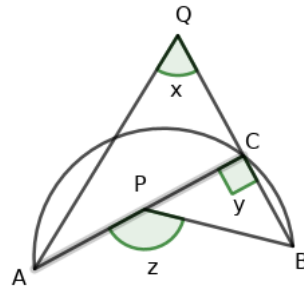## 1 മാർക്കിന്റെ ചോദ്യങ്ങൾ : ചില മാതൃകകൾ

1) Triangle OBC is an equilateral triangle, O is the centre of the circle. What is the measure of $\angle BAC$?

(a) $60°$ (b) $50°$ (c) $30°$ (d) $36°$

2) x, y, z are the angles outside the semicircle, on the semicircle and inside the semicircle.If these are in an arithmetic sequence then what is $x + z$?
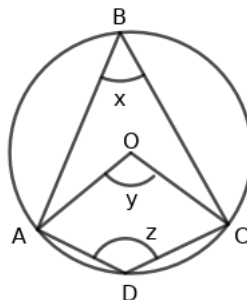

(a) $100°$ (b) $50°$ (c) $180°$ (d) $360°$

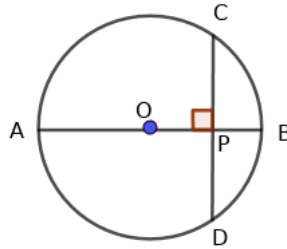3) Which of the following is not a cyclic quadrilatearl?

(a) ചതുരം   (b) സമചതുരം   (c) സമപാർശ്വലംബകം   (d) സമഭുജസാമാന്തരീകം

4) In the figure O is the centre of the circle.If x, y, z are in arithmetic sequence then what is y?

(a) $80°$ (b) $90°$ (c) $50°$ (d) $25°$

5) O is the centre of the circle with a diametre AB. The chord CD is perpendicular to AB.
If $PA = a, PB = b$ then what is CD?

(a) $\sqrt{ab}$ (b) $\sqrt{2ab}$ (c) $\sqrt{4ab}$ (d) $\sqrt{3ab}$

6) If $x - 1$ is a factor of $ax^3 + bx^2 + cx + d$ then what is $a + b + c + d$?

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

7) In the polynomial $p(x)$ then whatr is a factor of $p(x) - p(1)$?

(a) $x + 1$ (b) $x - 1$ (c) x (d) $x + 2$

8) Which is the first degree common factor of $x^3 + 1$ and $x^3 + x^2 + x + 1$

(a) $x - 1$ (b) $x + 1$ (c) $2x - 1$ (d) $x + 2$

9) If $x^2 - 7x + 12 = (x - 3)(x + a)$ then what is a?

(a) 2 (b) 3 (c) -4 (d) -1

10) $p(x) = x^3 + x^2 + x + k$ is a polynomial . If $x + 1$ is a factor then what is k ?

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

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Answers and Explanation

1)   a) $\angle BOC = 60°$.
     b) $\angle BAC = \frac{1}{2} \times \angle BOC = 30°$

2)   a) $y = 90°$
     b) x, y, z are in arithmetic sequence $2y = x + z$
        $x + z = 180°$

3)   a) Rhombus

4)   a) x, y, z are in arithmetic sequence ,$2y = x + z$
     b) $ABCD$ is a cyclic quadrilateral , $x + z = 180$,$x + z = 2y = 180$,$y = 90°$

5)   a) $PA \times PB = PC^2, PC^2 = a \times b, PC = \sqrt{ab}$
     b) $CD = 2 \times \sqrt{ab} = \sqrt{4ab}$

6)   a) $p(x) = ax^3 + bx^2 + cx + d$
        $x - 1$ is a factor $p(1) = 0$

2

b) $a + b + c + d = 0$

7)   **a)** $p(1)$ is the ramainder when $p(x)$ is divided by $x - 1$

        $p(x) - p(1)$ has a factor $x - 1$

     b) $x - 1$

8)   **a)** $p(x) = x^3 + 1 \rightarrow p(-1) = (-1)^3 + 1 = 0$, $x + 1$ is a factor of $p(x)$

        $q(x) = x^3 + x^2 + x + 1, q(-1) = (-1)^3 + (-1)^2 + (-1) + 1 = 0$

        $x + 1$ is a factor

     b) $x + 1$ is a common factor

9)   **a)** $12 = -3 \times a$, $a = -4$

     b) $x - 4$

10)   **a)** $p(-1) = 0 \rightarrow (-1)^3 + (-1)^2 + (-1) + k = 0$

      b) $k - 1 = 0, k = 1$

[1]