MATHEMATICS

TIME ALLOWED : 50 MINUTES

MAXIMUM MARKS : 20

SECTION - A

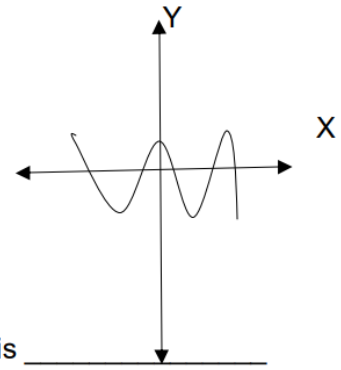
(1 markers)

Q1.

If one root of the equation $(k-1)x^2 - 10x + 3 = 0$ is the reciprocal of the other, then the value of k is_____

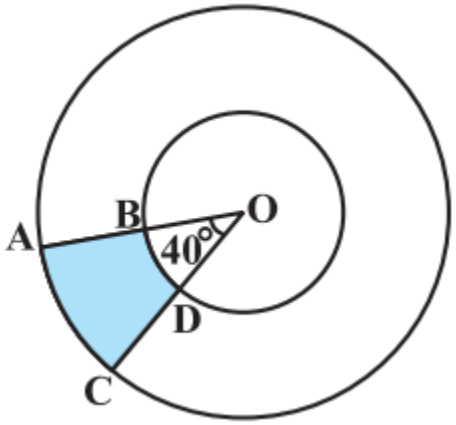
OR

The graph of $y = p(x)$, where $p(x)$ is a polynomial in variable x, is as follows:



The number of zeroes of $p(x)$ is _____

Q2. Find the area of the shaded region in Given Figure , if radii of the two concentric circles with centre O are 7 cm and 14 cm respectively and ∠ AOC = 40°.



SECTION(B)

(2 MARKERS)

Q3.

Find the value of k such that the polynomial $x^2-(k+6)x+2(2k-1)$ has sum of its zeros equal to half of their product.

Q4.

Find the area of the shaded region in Fig. 4, if ABCD is a rectangle with sides 8 cm and 6 cm and O is the centre of circle. (Take $\pi = 3.14$)

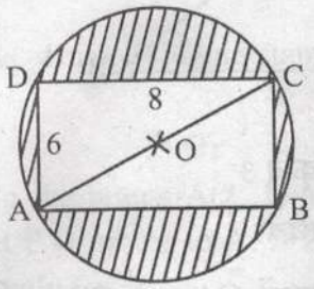


Fig. 4

SECTION C

(3 MARKERS)

Q5.

In figure 2, ABC is a right-angled triangle at A. Semi-circles are drawn on AB, AC and BC as diameters. Find the area of the shaded region.

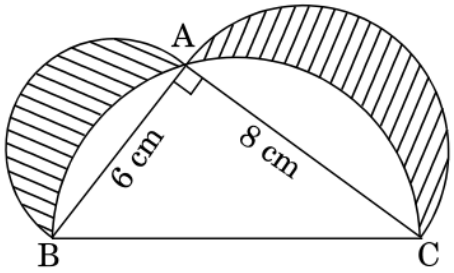


Figure 2

Q6.

Find all the zeroes of $2x^4 - 13x^3 + 19x^2 + 7x - 3$, if you know that two of its zeroes are $2 + \sqrt{3}$ and $2 - \sqrt{3}$.

SECTION(D)

(4 MARKERS)

Q7.

In Figure 5, PQRS is a square lawn with side PQ = 42 metres. Two circular flower beds are there on the sides PS and QR with centre at O, the intersection of its diagonals. Find the total area of the two flower beds (shaded parts).

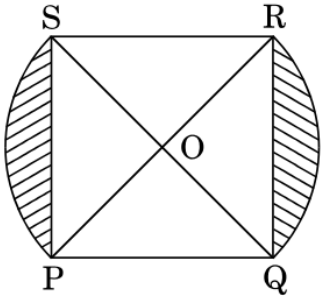
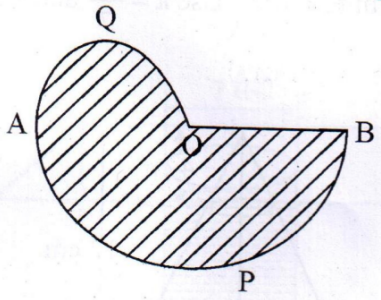


Figure 5

OR

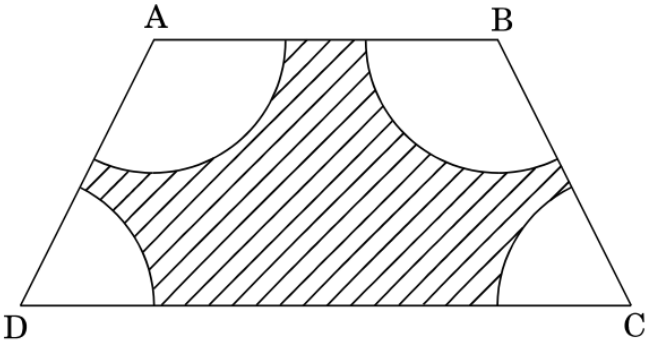
In Fig. 3, APB and AQO are semicircles, and AO = OB. If the perimeter of the figure is 40 cm, find the area of the shaded region. $\left[\text{Use } \pi = \frac{22}{7}\right]$



Q9. Sides of a right triangular field are 25m, 24m and 7m. At the three corners of the field, a cow, a buffalo and a horse are tied separately with ropes of 3.5 m each to graze in the field. Find the area of the field that cannot be grazed by these animals.

OR

In Figure 3, ABCD is a trapezium with AB || DC, AB = 18 cm, DC = 32 cm and the distance between AB and DC is 14 cm. If arcs of equal radii 7 cm have been drawn, with centres A, B, C and D, then find the area of the shaded region.



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