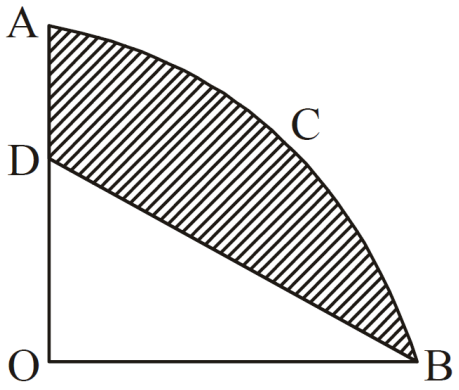
Q1. If (3, 3), (6, y), (x, 7) and (5, 6) are the vertices of a parallelogram taken in order, find the values of x and y. **3 Marks**

Q2. Sum of the areas of two squares is 157m^2. If the sum of their perimeters is 68m, find the sides of the two squares. **3 Marks**

Q3. The centre of a circle is (2a, a - 7). Find the values of 'a' if the circle passes through the point (11, -9). Radius of the circle is $5\sqrt{5}\text{cm}$. **3 Marks**

Q4. In the given figure, OACB is a quadrant of a circle with centre O and radius 3.5 cm. If OD = 2 cm, find the area of the shaded region. **3 Marks**



Q5. In Figure, find the area of the shaded region where a circular arc of radius 7cm has been drawn with vertex O of an equilateral triangle OAB of side 14cm as centre. $(\text{use } \pi = \frac{22}{7} \text{ and } \sqrt{3} = 1.73)$ **3 Marks**

Q6. Find the mean of the following frequency distribution: **3 Marks**

Class	**Frequency**
0 - 10	12
10 - 20	18
20 - 30	27
30 - 40	20
40 - 50	17
50 - 60	6

Q7. Heights of 50 students of class X of a school are recorded and following data is obtained: **3 Marks**

Height (in cm):	**Number of Students:**
130 - 135	4
135 - 140	11
140 - 145	12
145 - 150	7
150 - 155	10
155 - 160	6

Find the median height of the students.

Q8. Find the coordinates of a point P on the line segment joining A(1, 2) and B(6, 7) such that $\text{AP} = \frac{2}{5}\text{AB}$. **3 Marks**

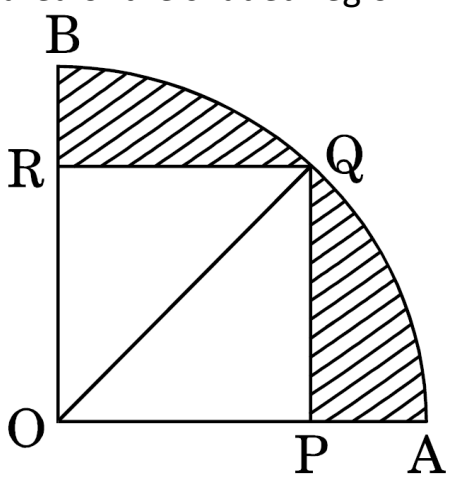
Q9. If the point A(0, 2) is equidistant from the points B(3, p) and C(p, 5), find p. Also find the length of AB. **3 Marks**

Q10. Find the ratio in which the y-axis divides the line segment joining the points (-1, -4) and (5, -6). Also find the coordinates of the point of intersection. **3 Marks**

Q11. Find the roots of the following quadratic equation **3 Marks**

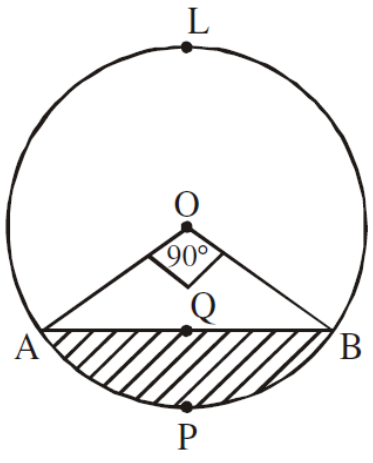
$2\sqrt{3}x^2 - 5x + \sqrt{3} = 0$

Q12. In Figure, a square OPQR is inscribed in a quadrant OAQB of a circle. If the radius of circle is $6\sqrt{2}\text{cm}$, find the area of the shaded region. **3 Marks**



Q13. If the point P(k - 1, 2) id equidistant from the points A (3, k) and B(k. 5), find the values of k. **3 Marks**

Q14. In fig. 5 is a chord AB of a circle, with centre O and radius 10cm, that subtends a right angle at the centre of the circle. Find the area of the minor segment AQBP. Hence find the area of major segment ALBQA. $(\text{use } \pi = 3.14)$ **3 Marks**



Q15. Find the ratio in which the point (2, y) divides the line segment joining the points A(–2, 2) and B(3, 7). Also find the value of y. **3 Marks**

Q16. In what ratio does the point P(–4, y) divide the line segment joining the points A(–6, 10) and B(3, –8) if it lies on AB. Hence find the value of y. **3 Marks**

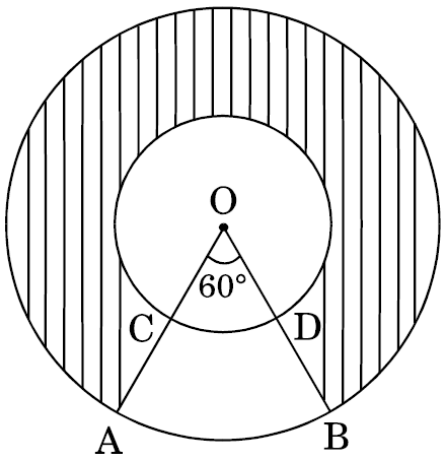
Q17. The marks obtained by 100 students in an examination are given below: **3 Marks**

Marks:	30-35	35-40	40-45	45-50	50-55	55-60	60-65
Number of Students:	14	16	28	23	18	8	3

Find the mean marks of the students.

Q18. For what values of k, are the root the quadratic equation: $(k + 4)x^2 + (k + 1)x + 1 = 0\text{equal?}$ **3 Marks**

Q19. In the given figure, two concentric circles with centre O have radii 21 cm and 42 cm. If $\angle AOB = 60^\circ$, find the area of the shaded region. $[\text{Use } \pi = \frac{22}{7}]$ **3 Marks**



Q20. If the point$\mathrm{P}(x, y)$ is equidistant from the points A(a + b, b - a) and B(a - b, a + b). Prove that $\mathrm{b}x = \mathrm{a}\mathrm{y}$. **3 Marks**

Q21. Solve the equation $\frac{3}{x+1} - \frac{1}{2} = \frac{2}{3x-1};\ x \neq -1,\ x \neq \frac{1}{3}$, for *x*. **3 Marks**

Q22. If the coordinates of points A and B are (-2, -2) and (2, -4) respectively, find the coordinates of P such that $\mathrm{AP} = \frac{3}{7}\mathrm{AB}$, where P lies on the line segment AB. **3 Marks**

Q23. Show that the points A(–1, 1), B(5, 7) and C(8, 10) are collinear. **3 Marks**

Q24. In Fig. 6, PQ = 24cm, PR = 7 \cm and O is the centre of the circle. Find the area of shaded region $(\text{take } \pi = 3.14)$ **3 Marks**

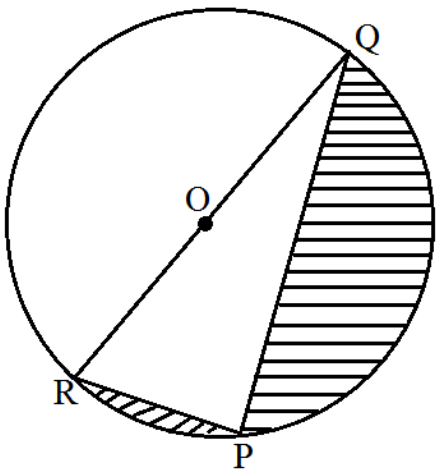


Fig. 6

Q25. Find the roots of the following equation: **3 Marks**
$\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}; x \neq -4, 7$