

ASSIGNMENT: CIRCLE

- Q.1. A circle of radius 6 units touches the coordinate axes in Ist Quadrant. Find Equation, its image in the line mirror
a) x - axis i.e. $y = 0$ b) y - axis i.e. $x = 0$
- Q.2 Find Equation of image of circle $x^2 + y^2 + 8x - 16y + 64 = 0$ in the line mirror $x = 0$ (y -axis)
- Q.3 A circle of radius 7 units touches coordinate axes in Ist Quadrant. If circle makes one complete revolution on x -axis along positive direction of x -axis. Find it equation in new position.
[Use $\pi = 22/7$].
- Q.4 Find equation of circle passes through $(5, -8)$, $(2, -9)$ and $(2, 1)$
- Q.5 Show that 4 points $(9, 1)$ $(7, 9)$ $(-2, 12)$ and $(6, 10)$ are concyclic.
- Q.6 If Line $2x - y + 1 = 0$ touches circle at $(2, 5)$ and centre of circle lies on $x + y - 9 = 0$. Find equation of that Circle.
- Q.7 Find equation of circle concentric with the circle $x^2 + y^2 - 6x + 12y + 15 = 0$ and double of its Area.
- Q.8 Find equation of circle concentric with the circle $x^2 + y^2 - 4x - 6y - 3 = 0$ and which touches y -axis.
- Q.9 If $y = 2x$ is the chord of circle $x^2 + y^2 - 10x = 0$. Find equation of Circle with this chord as diameter.
- Q.10 Find equation of a circle lies above X -axis which pass through origin and cut off equal chords of $\sqrt{2}$ unit from line $y = x$ and $y = -x$.
- Q.11 Find equation of circle the end points of whose diameter are the centre of the circles $x^2 + y^2 + 6x - 14y - 1 = 0$ and $x^2 + y^2 - 4x + 10y - 2 = 0$.
- Q.12 Sides of the square are $n = 6$, $x = 9$, $y = 3$ and $y = 6$. Find equation of circle drawn on the diagonal of square as its diameter.
- Q.13 The Line $2x - y + 6 = 0$ meet the circle $x^2 + y^2 - 2y - 9 = 0$ at A and B. Find equation of circle on AB as diameter.
- Q.14 A circle of radius 2 unit lies in Ist quadrant and touches both the axes. Find equation of circle with centre $(6, 5)$ and touch the Ist circle externally.

ANSWERS

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| 1) a) $x^2 + y^2 - 12x + 12y + 36 = 0$ | 9) $x^2 + y^2 - 2x - 4y = 0$ |
| b) $x^2 + y^2 + 12x - 12y + 36 = 0$ | 10) $x^2 + y^2 - 2y = 0$ |
| 2) $x^2 + y^2 - 8x - 16y + 64 = 0$ | 11) $x^2 + y^2 + x - 2y - 41 = 0$ |
| 3) $(x - 5)^2 + (y - 7)^2 = 25$ | 12) $x^2 + y^2 - 15x - 9y + 72 = 0$ |
| 4) $x^2 + y^2 - 4x + 8y - 5 = 0$ | 13) $x^2 + y^2 + 4x - 4y + 3 = 0$ |
| 6) $(x - 6)^2 + (y - 3)^2 = 20$ | 7) $x^2 + y^2 - 6x + 12y - 15 = 0$ |
| 8) $x^2 + y^2 - 4x - 6y + 9 = 0$ | 14) $(x - 6)^2 + (y - 5)^2 = 3^2$ |