Practice Questions

Q1. Find the centre and radius of the circle $x^2 + y^2 – 2x + 4y = 8$.

Page-193

S1. **Approach-1** If one knows general form of circle and its center and radius formulas then it is an easy one. Compare with $x^2 + y^2 + 2gx + 2fy + c = 0$,

$$center = (-g, -f) = (1, -2)$$

Using radius formula,

$$r = \sqrt{g^2 + f^2 - c} = \sqrt{1^2 + (-2)^2 - (-8)} = \sqrt{13}$$

Approach 2 We write the given equation in the form

$$(x^2 – 2x) + (y^2 + 4y) = 8$$

Now, completing the squares, we get

$$(x^2 – 2x + 1) + (y^2 + 4y + 4) = 8 + 1 + 4(x – 1)^2 + (y + 2)^2 = 13$$

Comparing it with the standard form of the equation of the circle, we see that the centre of the circle is (1, –2) and radius is 13.