Practice Questions

Q1. Find the equation of the circle which passes through the points (20, 3), (19, 8) and (2, -9). Find its centre and radius.

S1. This is a simple application of class notes formulas. If one remebers the formulas using some trick, then it can be done easily just by putting values in formulas. We can solve 3 equations to get 3 unknowns of general form. By substitution of coordinates in the general equation of the circle given by

$$x^2 + y^2 + 2gx + 2fy + c = 0$$

, we have

$$40g + 6f + c = -409$$
$$38g + 16f + c = -425$$
$$4g - 18f + c = -85$$

From these three equations, we get g = - 7, f = - 3 and c = -111 Hence, the equation of the circle is

$$x^2 + y^2 - 14x - 6y - 111 = 0$$
$$\implies (x - 7)^2 + (y - 3)^2 = 132$$

Therefore, the centre of the circle is (7, 3) and radius is 13.