The Circle 2

1. Write down the equation of the circle with:

   (a) centre (0, 0) and radius 5
   (b) centre (3, 5) and radius 2
   (c) centre (-1, 4) and radius 3
   (d) centre (-1, -6)) and radius 3.5

2. Write down the centre point and radius of each circle:

   (a) $(x – 3)^2 + (y – 4)^2 = 64$
   (b) $(x – 5)^2 + (y + 2)^2 = 25$
   (c) $(x + 3)^2 + (y – 4)^2 = 18$
   (d) $x^2 + (y + 2)^2 = 20$

3. Write down the centre point of the following circles:

   (a) $x^2 + y^2 + 4x – 8y + 10 = 0$
   (b) $x^2 + y^2 + 6x + 2y + 7 = 0$
   (c) $x^2 + y^2 - 10x + 5y + 5 = 0$
   (d) $x^2 + y^2 + 9x + 2 = 0$

4. Now find the radius of each circle in question 3.

5. The point (3,k) lies on the circle $x^2 + y^2 – 4x + 6y + 12 = 0$. Find k.

6. The lines x = -4, x = 8, y = -3 and y = 9 are tangents to a circle.
   Find the equation of this circle.

7. The lines x = 0, x = 5, y = 2 and y = -3 are tangents to a circle.
   Find the equation of this circle.

8. Find the equation of the circle centre (-1,5) which has the x-axis as a tangent.

9. The point (2,a) lies on the circle $x^2 + y^2 – 4x + 6y + 12 = 0$.
   What are the possible values for a?

10. The point (b, 5) lies on the circle $x^2 + y^2 + 16x + 2y - 7 = 0$.
    What are the possible values for a?

11. Find the equation of the circle centre (2, 5) which has the y-axis as a tangent.