

Circles – Section Test

- 1) A circle has the equation $x^2 + y^2 = 16$.
What is the radius of the circle?
- 2) A circle has the equation $(x + 3)^2 + (y - 1)^2 = 4$.
What is the y -coordinate of the centre?
- 3) The equation of a circle with centre $(2, 1)$ and radius 6 is
 - (a) $(x + 2)^2 + (y + 1)^2 = 36$
 - (b) $(x + 2)^2 + (y + 1)^2 = 6$
 - (c) $(x - 2)^2 + (y - 1)^2 = 6$
 - (d) $(x - 2)^2 + (y - 1)^2 = 36$
- 4) The equation of a circle with radius 5 and centre $(3, -2)$ is given by:
 $(x - a)^2 + (y - b)^2 = c$
What are the values for a , b and c ?

Questions 5 and 6 are about the circle $x^2 + y^2 - 2x + 6y = 10$.

- 5) The centre of the circle is

$$\left(\begin{array}{|c|} \hline \square \\ \hline \end{array}, \begin{array}{|c|} \hline \square \\ \hline \end{array} \right)$$

- 6) The radius of the circle is given in the form $\sqrt{a}$
What is the value for a ?
- 7) Describe the transformation that maps the circle $(x+2)^2 + (y+1)^2 = 8$ to the circle $x^2 + y^2 = 8$.
- (a) $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$ (b) $\begin{pmatrix} -1 \\ -2 \end{pmatrix}$
(c) $\begin{pmatrix} 2 \\ 1 \end{pmatrix}$ (d) $\begin{pmatrix} -2 \\ -1 \end{pmatrix}$
- 8) O is the centre of a circle. P is a point on the circumference. The gradient of OP is 2.
What is the gradient of the tangent at P ?
Give your answer as an exact decimal.

9) The equation of a line is $y = x$. The equation of a circle is $x^2 + y^2 = 8$. Which one of the following statements is true?

- | | |
|---|--|
| (a) The line does not meet the circle | (b) The line cuts the circle at two points |
| (c) The line cuts the circle at one point | (d) The line is a tangent to the circle |

10) The line $y = 2x + 3$ is a tangent to a circle with centre $(2, -3)$.

The radius of the circle is given in the form $\sqrt{a}$

What is the value of a ?