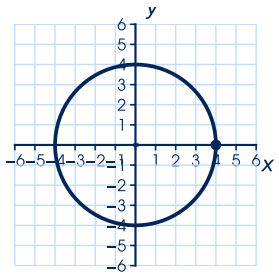
GCSE HIGHER · REVISION MAT 3

Equation of a circle and tangents

1 Write down the equation of this circle.



2 Where does the circle $x^2 + y^2 = 64$ cross the y-axis?

3 Is $(-7, 1)$ on the circle $x^2 + y^2 = 50$?

Show how you know.

4 P$(x, 6)$ lies on $x^2 + y^2 = 100$ and is in the second quadrant.

Find x.

5 Explain why the tangent to $x^2 + y^2 = 25$ at $(0, 5)$ is horizontal.

Write down its equation.

6 Find the equation of the tangent to $x^2 + y^2 = 10$ at $(-1, 3)$.

7 Show that the line $x + y = 6$ does not meet the circle $x^2 + y^2 = 16$.

8 The tangent to $x^2 + y^2 = 100$ at $(6, 8)$ crosses the axes at A and B.

Find the length AB to 3 s.f.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 3

Equation of a circle and tangents

1 $x^2 + y^2 = 16$

2 (0, 8) and (0, –8)

3 $49 + 1 = 50$

Yes

4 $x^2 = 64$

$x = -8$

5 The radius is vertical, so the tangent is horizontal.

$y = 5$

6 Radius gradient –3, tangent $\frac{1}{3}$

$3 = -\frac{1}{3} + c$

$y = \frac{1}{3}x + \frac{10}{3}$

7 $x^2 + (6 - x)^2 = 16$

$x^2 - 6x + 10 = 0$

$b^2 - 4ac = 36 - 40 < 0$

No real solutions

8 Tangent: $3x + 4y = 50$

A$(\frac{50}{3}, 0)$, B(0, 12.5)

AB = 20.8

Mr&Mrs MATHS