GCSE HIGHER · REVISION MAT 2

Equation of a circle and tangents

1 Write down the radius of

$x^2 + y^2 = 81$

2 A circle has centre (0, 0) and passes through (0, –3).

Write down its equation.

3 Explain why (4, 4) is inside the circle $x^2 + y^2 = 36$.

4 The circle $x^2 + y^2 = 50$ passes through $(a, 5)$, where $a > 0$.

Find a.

5 Find the gradient of the tangent to $x^2 + y^2 = 169$ at (–5, 12).

6 Find the equation of the tangent to $x^2 + y^2 = 20$ at (2, 4).

7 Show that the line $y = x + 2$ meets the circle $x^2 + y^2 = 10$ at two points.

Find them.

8 The tangents to $x^2 + y^2 = 25$ at A(3, 4) and B(3, –4) meet at T.

Find the coordinates of T.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 2

Equation of a circle and tangents

1 **9**

2 $x^2 + y^2 = 9$

3 $16 + 16 = 32$

32 < 36, so it is less than the radius from O.

4 $a^2 + 25 = 50$

$a = 5$

5 Radius gradient $-\frac{12}{5}$

Tangent gradient $\frac{5}{12}$

6 Radius gradient 2, tangent $-\frac{1}{2}$

$4 = -1 + c$

$y = -\frac{1}{2}x + 5$

7 $x^2 + (x + 2)^2 = 10$

$x^2 + 2x - 3 = 0$

(1, 3) and (–3, –1)

8 At A: $3x + 4y = 25$

At B: $3x - 4y = 25$

T = $(\frac{25}{3}, 0)$