Topic Test 1 (20 minutes)

Equation of a circle - Higher

Assume any lengths are in centimetres.

1 The equation of a circle is $x^2 + y^2 = 2$

Circle the value of the radius.

[1 mark]

1 $\sqrt{2}$ 2 4

2 A circle has centre (0, 0) and a radius of 3

Circle the equation.

[1 mark]

$x^2 + y^2 = 9$ $x^2 + y^2 = 3$ $x^2 + y^2 = \sqrt{3}$ $x^2 + y^2 = 6$

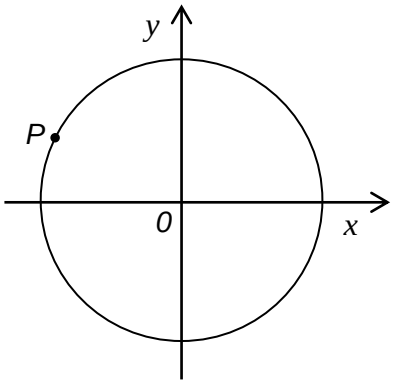
3 The area of circle centred on the origin is 25π

Work out the equation of the circle.

[2 marks]

Answer _____

4 $P(-5, 1)$ is a point on the circle $x^2 + y^2 = 26$



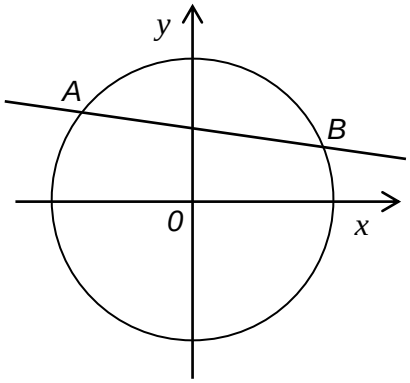
Not drawn accurately

Work out the equation of the tangent to the circle at P.

[4 marks]

Answer _____

5 The circle $x^2 + y^2 = 13$ and the line $5y + x = 13$ intersect at points A and B.



Not drawn accurately

5 (a) Work out the length of the chord AB.

[6 marks]

Answer _____ units

5 (b) Show that angle $AOB = 90°$

[2 marks]

6 Show that the line $y = -3x + 10$ is a tangent to the circle $x^2 + y^2 = 10$

[4 marks]