



THIRD SPACE
LEARNING

GCSE Exam Questions

Equation of a Circle | Geometry
& Measure

GCSE Exam Questions: Equation of a Circle

- 1) A circle C has the equation $x^2 + y^2 = 10$
- Point P lies on the circle and has an x coordinate of 1.
Its y coordinate is positive.
- The tangent P intersects the x -axis at point Q .
- Find the coordinates of Q .

(5 marks)

- 2) A circle C has its centre at $(0,0)$
- The circumference of the circle is 20π
- Find the equation of the circle.

(4 marks)

- 3) The line l is a tangent to the circle $x^2 + y^2 = 40$ at the point $A(2,6)$. The line l crosses the x -axis at the point P .
- Find the area of OAP .

(5 marks)

GCSE Exam Questions: Equation of a Circle Answers

	Question	Answer	Marks
1)	<p>A circle C has the equation $x^2 + y^2 = 10$</p> <p>Point P lies on the circle and has an x coordinate of 1. Its y coordinate is positive.</p> <p>The tangent P intersects the x-axis at point Q.</p> <p>Find the coordinates of Q</p>	<p>$P(1,3)$</p> <p>Gradient of OP is $\frac{3-0}{1-0} = 3$</p> <p>Gradient of PQ is $-\frac{1}{3}$</p> <p>PQ has equation of</p> $y = -\frac{1}{3}x + \frac{10}{3}$ $0 = -\frac{1}{3}x + \frac{10}{3}$ $\frac{1}{3}x = \frac{10}{3}$ $x = 10$ <p>$Q(10, 0)$</p>	<p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p>
2)	<p>A circle C has its centre at $(0,0)$</p> <p>The circumference of the circle is 20π.</p> <p>Find the equation of the circle</p>	$20\pi = \pi \times 2r$ $r^2 = 100$ $x^2 + y^2 = \text{their } r^2$ $x^2 + y^2 = 100$	<p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p>
3)	<p>The line l is a tangent to the circle $x^2 + y^2 = 40$ at the point $A(2,6)$</p> <p>The line l crosses the x axis at the point P.</p> <p>Find the area of OAP.</p>	<p>Centre of circle $(0,0)$</p> <p>Height of OAP : 2</p> $= -\frac{1}{3}x + \frac{20}{3}$ $x = 20$ <p>$P(20,0)$</p> <p>Area of Triangle = $0.5 \times 20 \times 6$</p> <p>Area of $OAP = 60$</p>	<p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p> <p>(1)</p>

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