



EXAM PAPERS PRACTICE

GCSE OCR Math J560

Equation of a circle

Question Paper

*"We will help you to
achieve A Star "*



Question 1

The equation of a curve is $y = a^x$

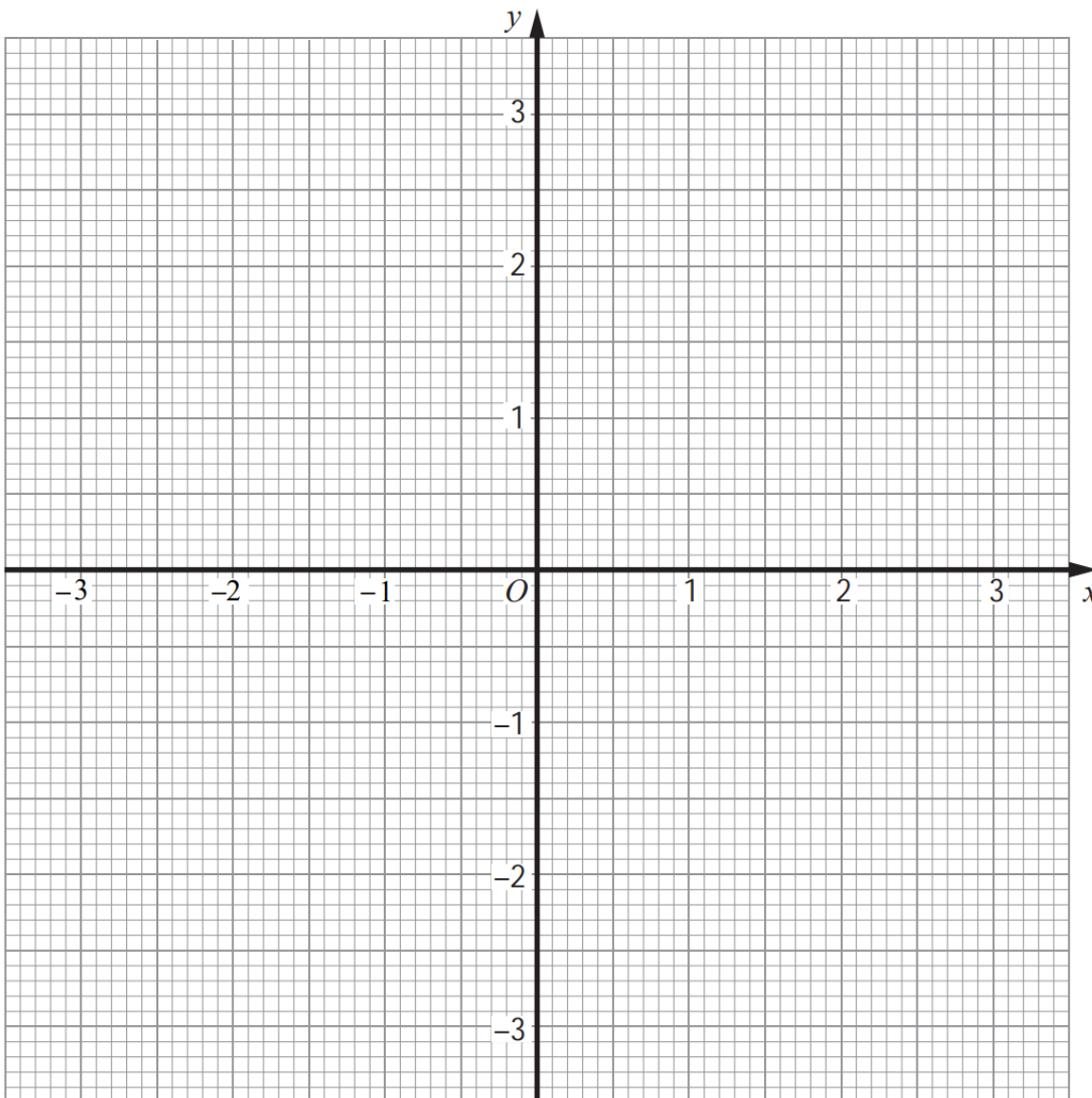
A is the point where the curve intersects the y -axis.

(a) State the coordinates of A .

[1 mark]

Question 2

(a) Construct the graph of $x^2 + y^2 = 9$



[2 marks]



Question 3

Describe fully the graph which has the equation $x^2 + y^2 = 9$.

[2 marks]

Question 4

(b) The tangent to the circle at the point $P(-2, 1)$ intersects the y -axis at A .

Show that the area of the triangle APO is 5 square units.

[6 marks]

Question 5

L is the circle with equation $x^2 + y^2 = 4$

$P\left(\frac{3}{2}, \frac{\sqrt{7}}{2}\right)$ is a point on L .

Find an equation of the tangent to L at the point P .

[3 marks]



Question 6

The equation of circle **C** is $x^2 + y^2 = 16$

The circle **C** is translated by the vector $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ to give circle **B**.

(b) Draw a sketch of circle **B**.

Label with coordinates
the centre of circle **B**
and any points of intersection with the x -axis.

[3 marks]

Question 7

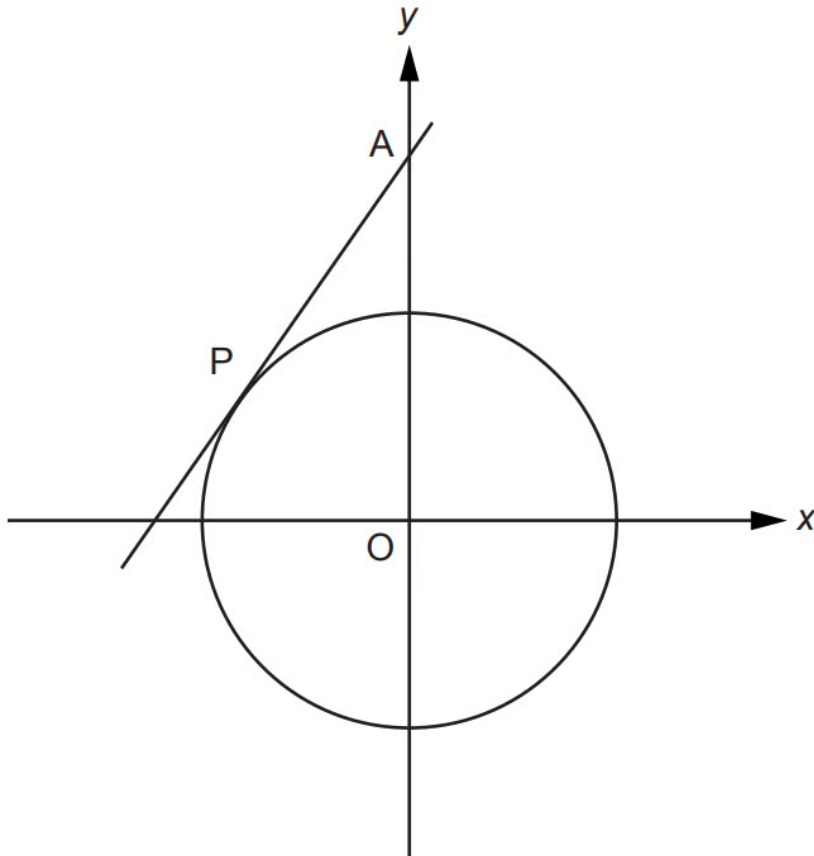
(b) By drawing the line $x + y = 1$ on the grid, solve the equations $x^2 + y^2 = 9$
 $x + y = 1$

[3 marks]



Question 8

The diagram shows the circle $x^2 + y^2 = 5$.



Not to scale

- (a) Mandy says that the point $(2, 1.5)$ lies inside the circle.

Is she correct?

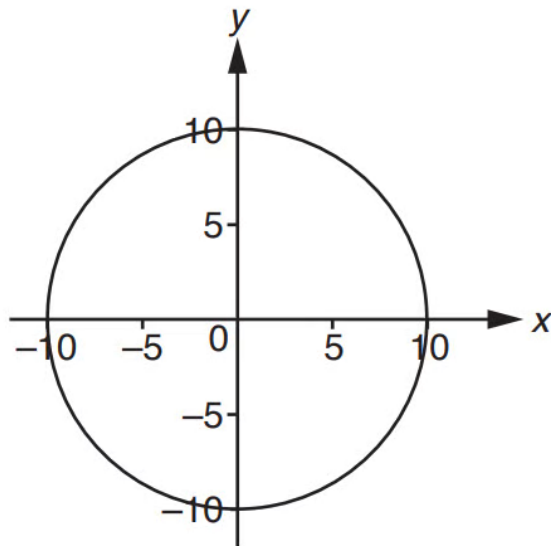
Show how you decide.

[2 marks]



Question 9

The diagram shows a circle, centre the origin.



(a) Write down the equation of the circle.

[1 mark]

Question 10

(c) Find the equation of the tangent to the circle at point P.

[5 marks]



Question 11

(b) The line $10x + py = q$ is a tangent at the point $(5, 4)$ in another circle with centre $(0, 0)$.

Find the value of p and the value of q .

[4 marks]

Question 12

(b) Colin says that the point $(5, 7)$ lies outside the circle.

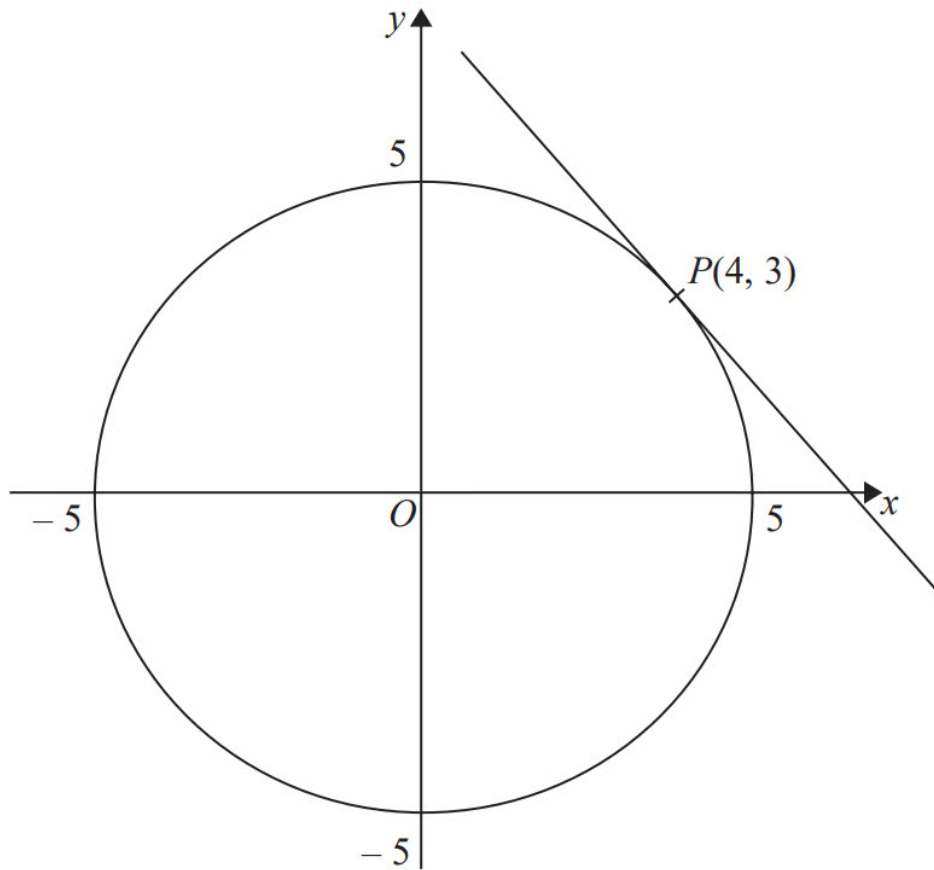
Is Colin correct?
Show your reasoning.

[2 marks]



Question 13

Here is a circle, centre O , and the tangent to the circle at the point $P(4, 3)$ on the circle.



Find an equation of the tangent at the point P .

[3 marks]



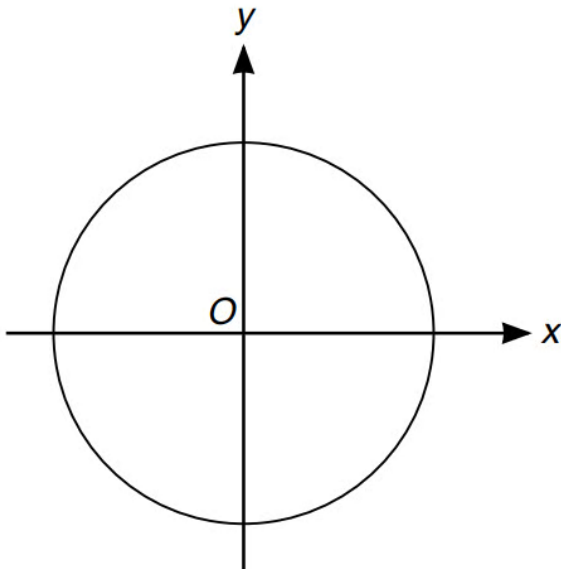
Question 14

- (b) Point P has coordinates $(8, -6)$.
Show that point P lies on the circle.

[2 marks]

Question 15

- (a) The diagram shows a circle, centre O .



The circumference of the circle is 20π cm.

Find the equation of the circle.

[4 marks]