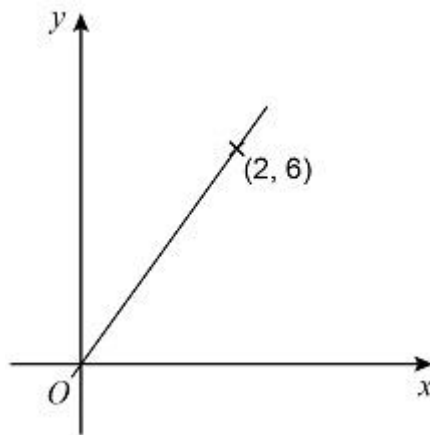


GCSE to A-level Maths Transition

Name: **Straight Lines and Circles (1)**

Q1. A straight line passes through O and $(2, 6)$



Circle the equation of the line.

$y = x + 4$

$y = 6$

$y = 3x$

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

(Total 1 mark)

Q2. The equation of a straight line is $2y = 3x + 5$

Circle the gradient of the line.

$\frac{2}{3}$

$\frac{3}{2}$

3

5

(Total 1 mark)

Q3. (a) Show that the lines $y = 3x + 7$ and $2y - 6x = 8$ are parallel.

Do **not** use a graphical method.

(3)

(b) Is the point $(-5, -6)$ above, below or on the line $y = 3x + 7$?

Tick **one** box.

☐

Above

☐

Below

☐

On the line

You **must** show your working

Do **not** use a graphical method.

(2)

(Total 5 marks)

Q4. Line A has equation $y = 4x - 1$

Line B is

perpendicular to line A

and

passes through the point (8, 5)

Work out the coordinates of the point where line B intersects the x -axis.

Answer (_____ , _____)

(Total 4 marks)

Q5. A circle has equation $x^2 + y^2 = 4$

Circle the length of its radius.

2

4

8

16

(Total 1 mark)

Q6. The equation of a circle is $x^2 + y^2 = 9$

Work out the length of the diameter.

Circle your answer.

3

6

9

18

(Total 1 mark)

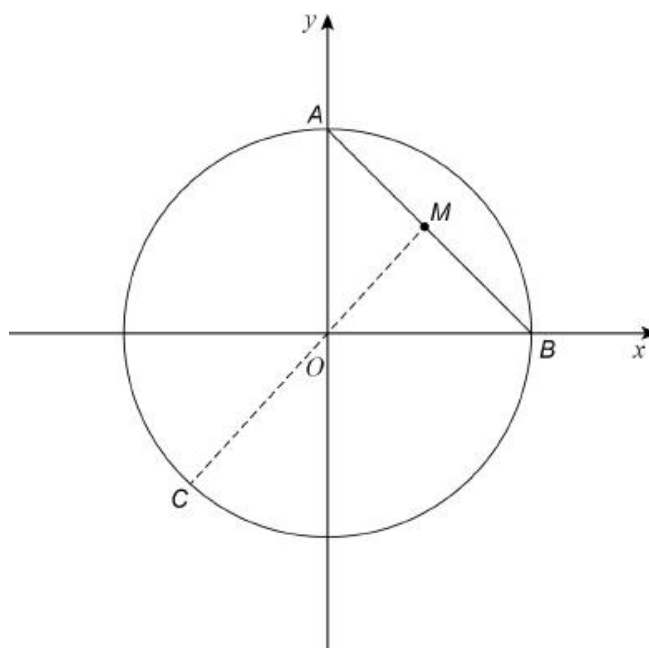
Q7. A , B and C are points on the circle $x^2 + y^2 = 36$ as shown.

A is on the y -axis.

B is on the x -axis.

M is the midpoint of AB .

COM is a straight line.



(a) Show that the coordinates of A are $(0, 6)$

(1)

(b) Work out the coordinates of B .

Answer (_____ , _____)

(1)

- (c) Show that the equation of the straight line passing through C , O and M is $y = x$

(2)

- (d) Work out the coordinates of C .

Give your answers in surd form.

Answer (_____ , _____)

(3)

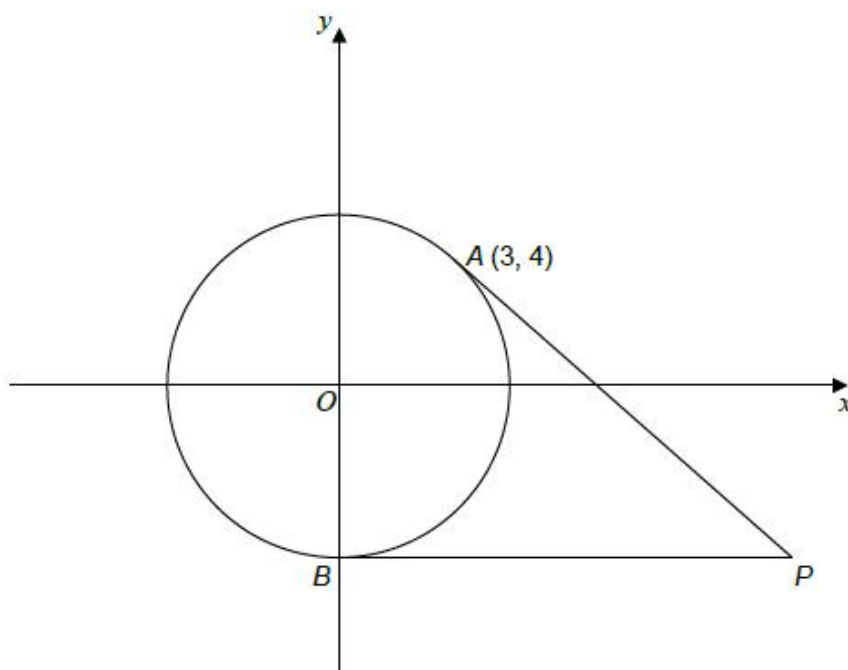
(Total 7 marks)

- Q8.** A and B are points on the circle with equation $x^2 + y^2 = 25$

A is $(3, 4)$

B is a point on the y -axis.

PA and PB are tangents.



- (a) Show that the coordinates of B are $(0, -5)$

(1)

- (b) Give a reason why $PA = PB$

(1)

- (c) P is the point (a, b)

Work out the values of a and b .

$$a = \underline{\hspace{10cm}}$$

$$b = \underline{\hspace{10cm}}$$

(4)

(Total 6 marks)