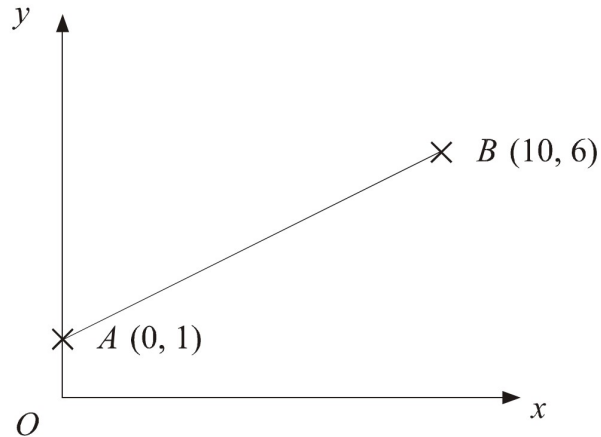**1**

A is the point (0, 1)
B is the point (10, 6)

The equation of the straight line through A and B is $y = \frac{1}{2}x + 1$

a) Write down the equation of another straight line parallel to $y = \frac{1}{2}x + 1$

(1)

b) Write down the equation of another straight line that passes through the point (0, 1)

(1)

c) Find the equation of the line perpendicular to AB passing through B.

(3)

2 A straight line, L, passes through the point with coordinates (4, 7) and is perpendicular to the line with equation y = 2x + 3.

Find an equation of the straight line L.

(3)

3 A straight line passes through the points (0, 5) and (3, 17).
Find the equation of the straight line.

(3)

4 Show that line 3y = 4x - 14 is perpendicular to line 4y = -3x + 48.

(4)

5 Here are the equations of 5 straight lines.

P: $y = 2x + 5$

Q: $y = -2x + 5$

R: $y = x + 5$

S: $y = -\frac{1}{2}x + 6$

T: $y = \frac{1}{2}x + 1$

a)   Write down the letter of the line that is parallel to $y = x + 6$

(1)

b)   Write down the letter of the line that is perpendicular to $y = 2x - 1$

(1)

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6 The point A has the coordinates (2,5) The point B has the coordinates (6,7)

a) Find the mid point of AB

(2)

b) Find the gradient of the line that passes through AB

(2)

c) Find the equation of the perpendicular bisector to AB

(3)

7 A circle C has centre (2,5)

The point A (11, 8) lies on the circumference of the circle

Find the equation of the tangent to the circle at A

(5)

8 A circle has the equation $x^2 + y^2 = 5$

a) Write down the centre of the circle

(1)
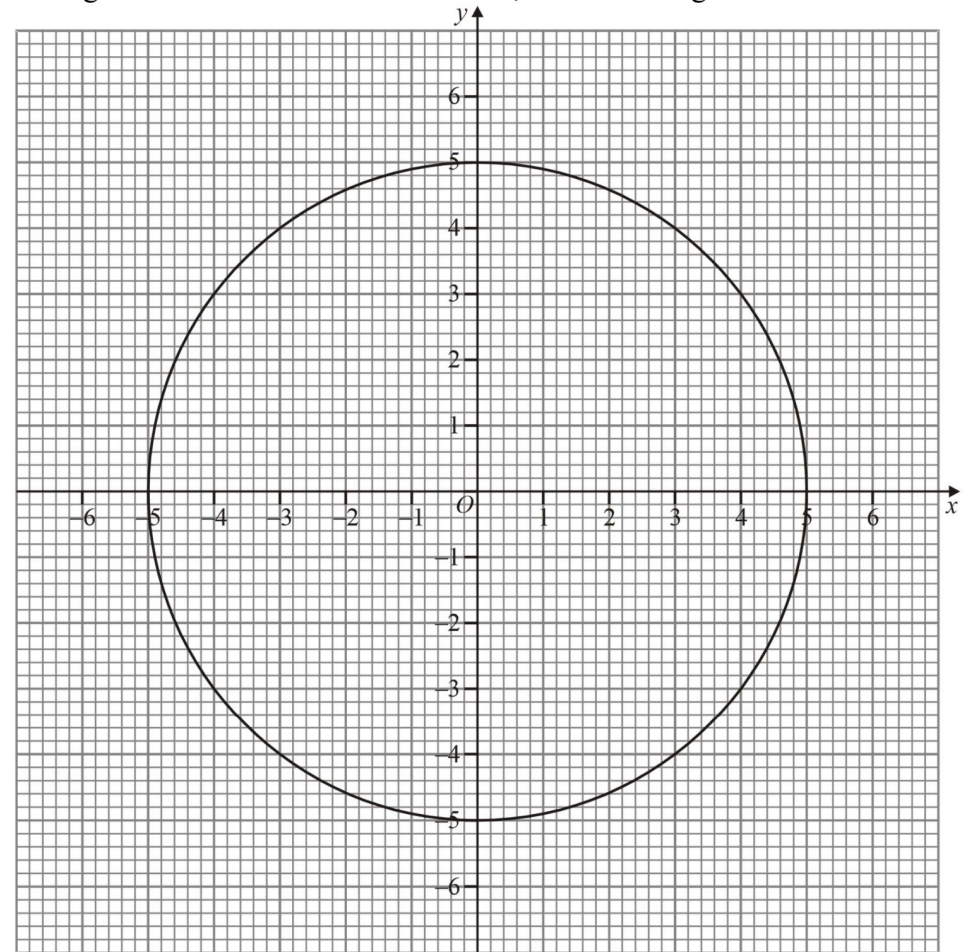
b) Write down the exact length of the radius of the circle

(1)

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

c) Work out the equation of the tangent to the circle at P

(4)

9 The diagram shows a circle of radius 5 cm, centre the origin.

Find the equation of the tangent to the circle at (3,4)

(5)

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