A269 Straight line graphs 2

Q1.

The straight line **L** has the equation $3y = 4x + 7$
The point A has coordinates $(3, -5)$

Find an equation of the straight line that is perpendicular to **L** and passes through A.

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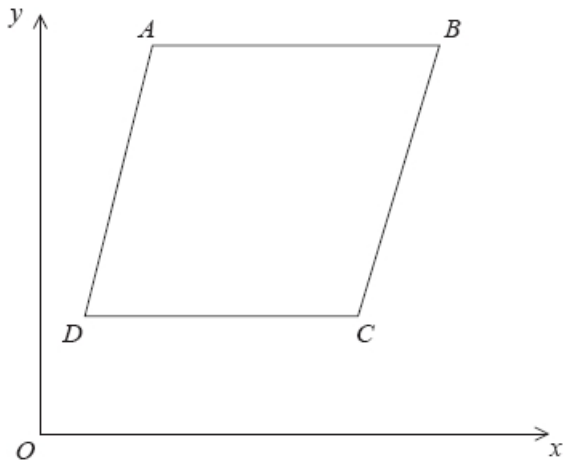
(Total for question = 3 marks)

Q2.



ABCD is a rhombus.
The coordinates of *A* are (5,11)

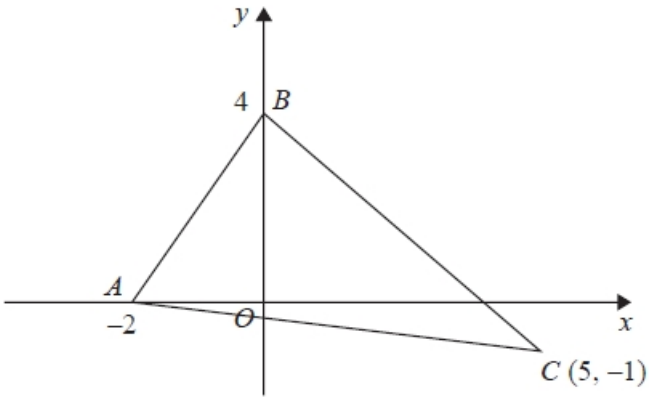
The equation of the diagonal *DB* is $y = \frac{1}{2}x + 6$

Find an equation of the diagonal *AC*.

.....

(Total for question = 4 marks)

Q3.

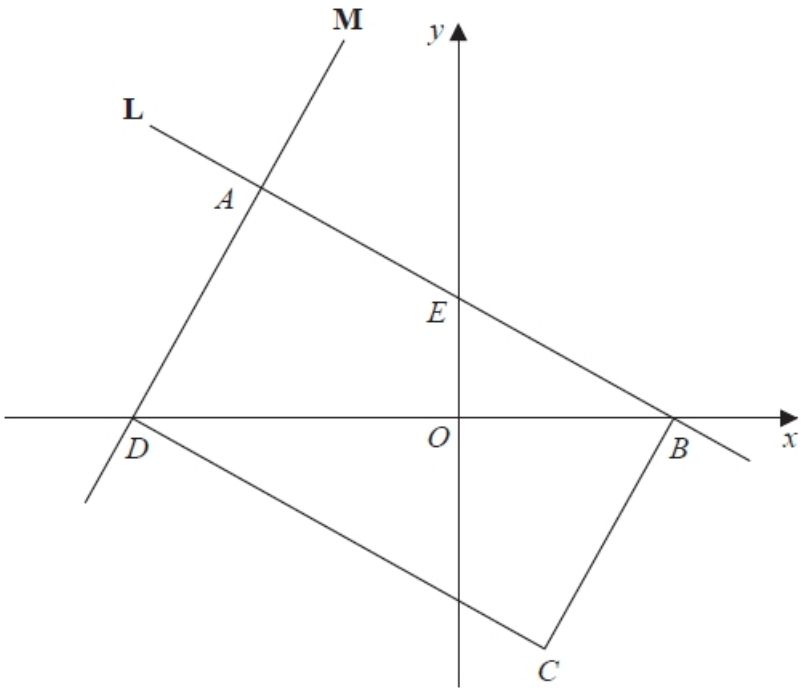


Find an equation of the line that passes through *C* and is perpendicular to *AB*.

.....

(Total for question is 4 marks)

Q4.



ABCD is a rectangle.

A, *E* and *B* are points on the straight line **L** with equation $x + 2y = 12$
A and *D* are points on the straight line **M**.

$AE = EB$

Find an equation for **M**.

.....

(Total for question = 4 marks)

Q5.

P has coordinates (–9, 7)
Q has coordinates (11, 12)

M is the point on the line segment *PQ* such that *PM* : *MQ* = 2 : 3

Line **L** is perpendicular to the line segment *PQ*.
L passes through *M*.

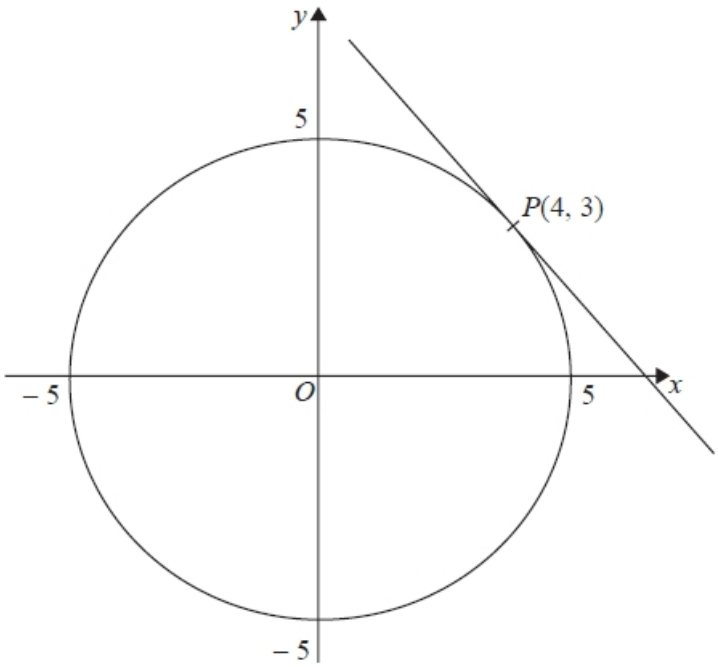
Find an equation of **L**.

.....

(Total for question = 5 marks)

Q6.

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

.....

(Total for question is 3 marks)

Q7.

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*.

.....

(Total for question = 3 marks)

Q8.

The line l is a tangent to the circle $x^2 + y^2 = 40$ at the point A.
A is the point (2, 6).

The line l crosses the x–axis at the point P.

Work out the area of triangle OAP.

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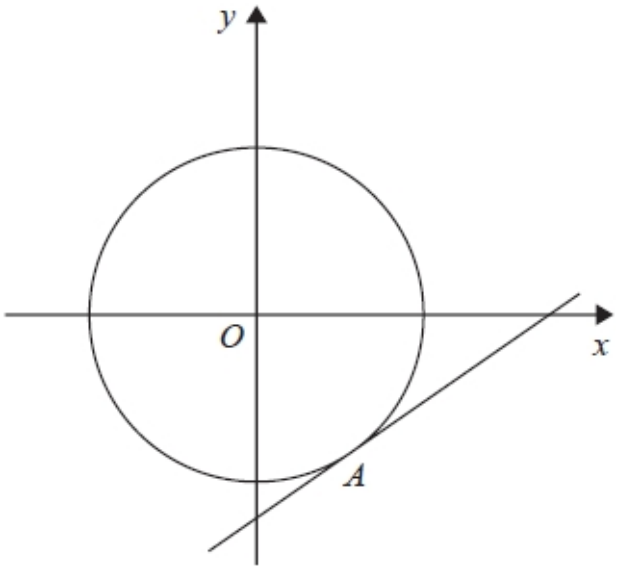
(Total for question = 5 marks)

Q9.

The diagram shows the circle with equation $x^2 + y^2 = 261$



A tangent to the circle is drawn at point A with coordinates $(p, -15)$, where $p > 0$

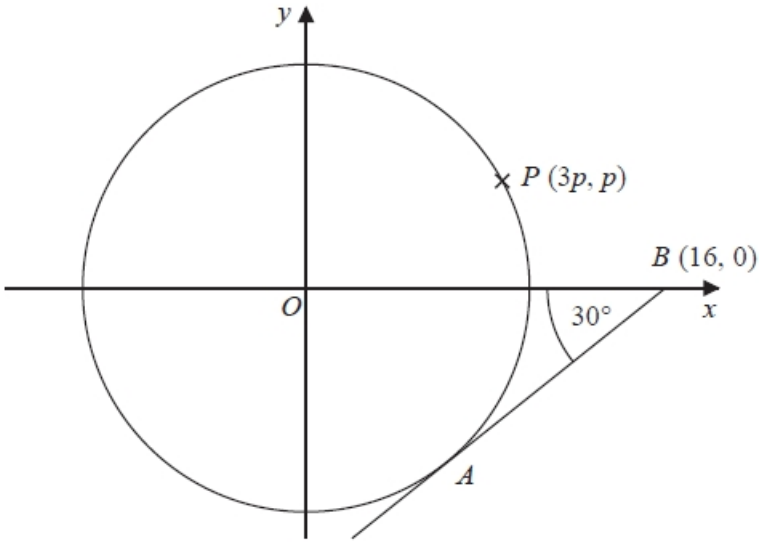
Find an equation of the tangent at A.

.....

(Total for question = 5 marks)

Q10.

The diagram shows a circle, centre *O*.



AB is the tangent to the circle at the point *A*.
Angle *OBA* = 30°

Point *B* has coordinates (16, 0)
Point *P* has coordinates (3*p*, *p*)

Find the value of *p*.
Give your answer correct to 1 decimal place.
You must show all your working.

p = ...

(Total for question = 4 marks)