Circle geometry

Question 1

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.

.....

Question 2

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

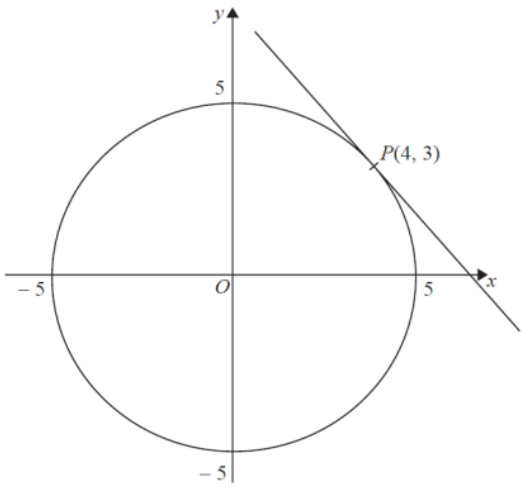
The line l crosses the x-axis at the point P.

Work out the area of triangle OAP.

..... $units^2$

Question 3

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.

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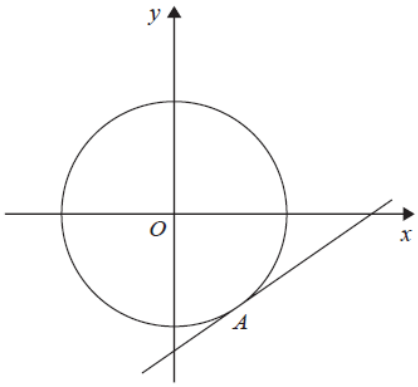
Question 4

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*.

.....

(5 marks)

Question 5

The straight line L_1 passes through the points with coordinates $(4,6)$ and $(12,2)$ The straight line L_2 passes through the origin and has gradient -3

The lines L_1 and L_2 intersect at point P.

Find the coordinates of P.

.....

(4 marks)

Question 6

The point P has coordinates $(3,4)$ The point Q has coordinates (a, b)

A line perpendicular to PQ is given by the equation $3x + 2y = 7$

Find an expression for b in terms of a

$b =$ .....

(5 marks)