



The line L has equation $y = 2x + 8$
 The line L crosses the x-axis at the point A.
 The line M is perpendicular to Line L and passes through the point A

Find the coordinates of the point A.

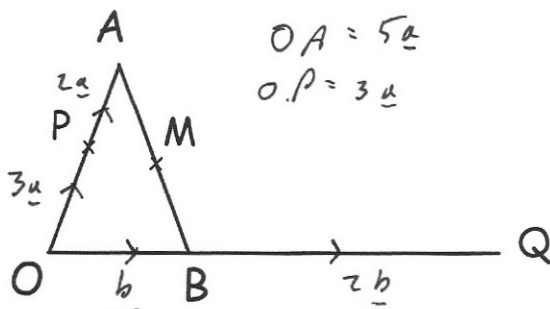
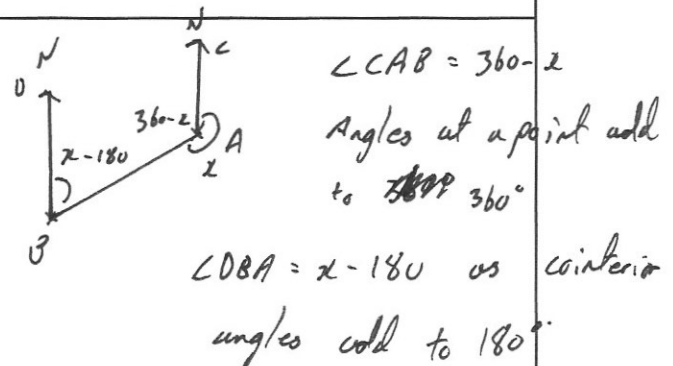
$$(-4, 0)$$

Find equation of the Line M.

$$y = -\frac{1}{2}x - 2$$

The bearing of A to B is x .
 x is greater than 180° .

Show the bearing of B to A is $(x - 180)^\circ$



$$\vec{OA} = 5\mathbf{a} \quad \vec{OB} = \mathbf{b}$$

M is the midpoint of AB
 P is a point on OA, such that $OP:OA = 3:5$
 B is a point on OQ, such that $OB:BQ = 1:2$

Show that PMQ is a straight line.

$$\vec{AB} = \mathbf{b} - 5\mathbf{a}$$

$$\vec{AM} = \frac{1}{2}\mathbf{b} - 2.5\mathbf{a}$$

$$\vec{PM} = \vec{PA} + \vec{AM}$$

$$= 2\mathbf{a} + \frac{1}{2}\mathbf{b} - 2.5\mathbf{a}$$

$$= \frac{1}{2}\mathbf{b} - \frac{1}{2}\mathbf{a}$$

$$\vec{MQ} = \vec{MB} + \vec{BQ}$$

$$= \frac{1}{2}\mathbf{b} - 2.5\mathbf{a} + 2\mathbf{b}$$

$$= 2.5\mathbf{b} - 2.5\mathbf{a}$$

$$\therefore \vec{MQ} = 5\vec{PM} \quad \text{and both}$$

pass through M.

\therefore PMQ is a straight line.