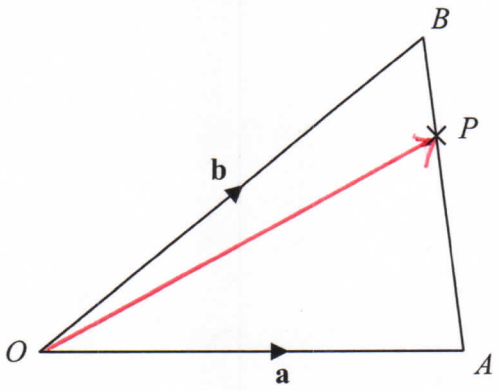
GCSE VECTORS

26



1 : 3

Diagram **NOT** accurately drawn

OAB is a triangle.

$\overrightarrow{OA} = \mathbf{a}$

$\overrightarrow{OB} = \mathbf{b}$

(a) Find $\overrightarrow{AB}$ in terms of **a** and **b**.

$\overrightarrow{AB} = \overrightarrow{AO} + \overrightarrow{OB}$

$= -\underline{a} + \underline{b}$

$\overrightarrow{AB} = \underline{b} - \underline{a}$

(1)

P is the point on *AB* such that $AP : PB = 3 : 1$

(b) Find $\overrightarrow{OP}$ in terms of **a** and **b**.
Give your answer in its simplest form.

$\overrightarrow{OP} = \overrightarrow{OA} + \overrightarrow{AP}$

$= \overrightarrow{OA} + \frac{3}{4}\overrightarrow{AB}$

$= \underline{a} + \frac{3}{4}(\underline{b} - \underline{a})$

$= \underline{a} + \frac{3}{4}\underline{b} - \frac{3}{4}\underline{a}$

$= \frac{1}{4}\underline{a} + \frac{3}{4}\underline{b}$

$\overrightarrow{OP} = \frac{1}{4}\underline{a} + \frac{3}{4}\underline{b}$

(3)

(Total for Question 26 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS