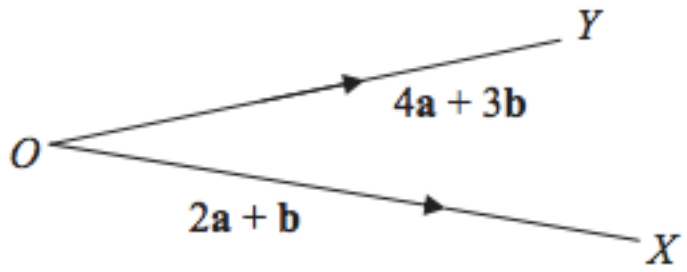
Geometry - Vectors

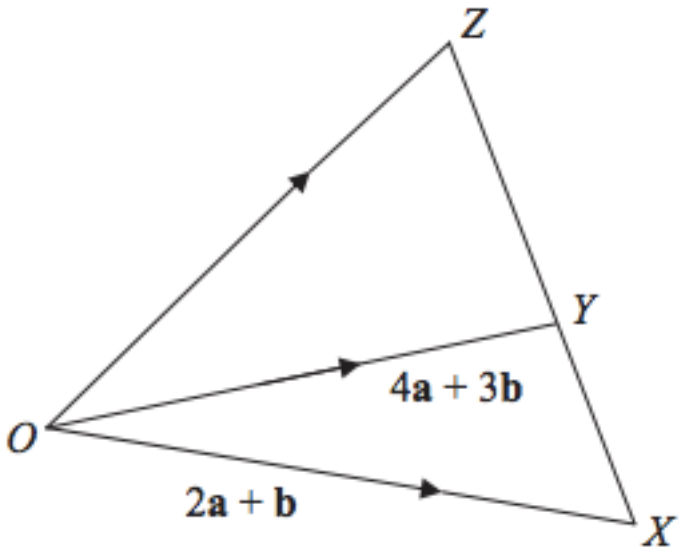


$\overrightarrow{OX} = \mathbf{2a + b}$

$\overrightarrow{OY} = \mathbf{4a + 3b}$

(a) Express the vector $\overrightarrow{XY}$ in terms of **a** and **b**
Give your answer in its simplest form.

(2)

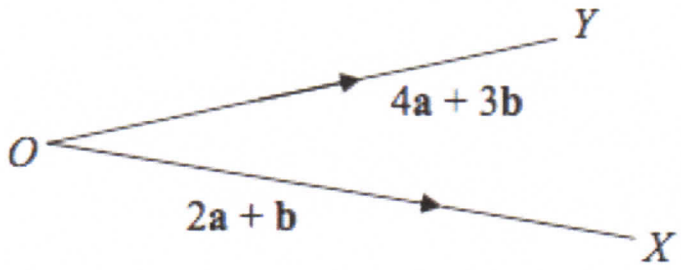


XYZ is a straight line.
$XY : YZ = 2 : 3$

(b) Express the vector $\overrightarrow{OZ}$ in terms of **a** and **b**
Give your answer in its simplest form.

(3)

Geometry - Vectors



$\overrightarrow{OX} = 2\mathbf{a} + \mathbf{b}$

$\overrightarrow{OY} = 4\mathbf{a} + 3\mathbf{b}$

Nose to tail rule

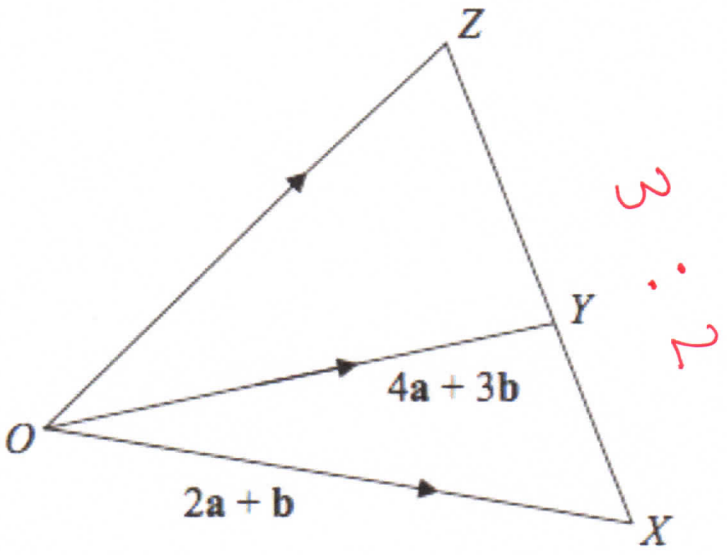
$\overrightarrow{XY} = \overrightarrow{XO} + \overrightarrow{OY}$

$\overrightarrow{XY} = -2\underline{a} - \underline{b} + 4\underline{a} + 3\underline{b}$

$\overrightarrow{XY} = 2\underline{a} + 2\underline{b}$

(a) Express the vector $\overrightarrow{XY}$ in terms of **a** and **b**
Give your answer in its simplest form.

(2)



3 : 2

XYZ is a straight line.
$XY : YZ = 2 : 3$

(b) Express the vector $\overrightarrow{OZ}$ in terms of **a** and **b**
Give your answer in its simplest form.

(3)

$\overrightarrow{OZ} = \overrightarrow{OY} + \overrightarrow{YZ}$

$= 4\underline{a} + 3\underline{b} + \frac{3}{2}(2\underline{a} + 2\underline{b})$

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

$= 7\underline{a} + 6\underline{b}$