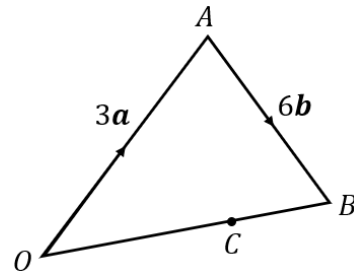


Vectors and Ratio

(a)

In the triangle OAB , $\overrightarrow{OA} = 3\mathbf{a}$ and $\overrightarrow{AB} = 6\mathbf{b}$. The point C divides the line OB in the ratio $2 : 1$.



Express the following in terms of \mathbf{a} and \mathbf{b} :

(a) \overrightarrow{OB}

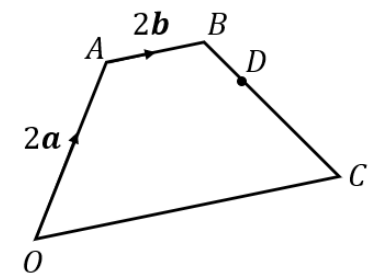
(b) \overrightarrow{OC}

(c) \overrightarrow{BC}

(d) \overrightarrow{AC}

(b)

$OABC$ is a trapezium, where $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{AB} = \mathbf{b}$. $\overrightarrow{OC} = 2\overrightarrow{AB}$ and D splits the line BC in the ratio $1 : 3$.



Express the following in terms of \mathbf{a} and \mathbf{b} :

(a) \overrightarrow{BO}

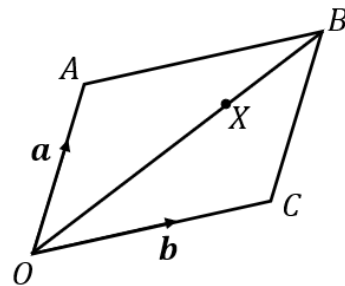
(b) \overrightarrow{BC}

(c) \overrightarrow{BD}

(d) \overrightarrow{DO}

(c)

In the parallelogram $OABC$, $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OC} = \mathbf{b}$. The point X divides the line OB in the ratio $3 : 2$.



Express the following in terms of \mathbf{a} and \mathbf{b} :

(a) \overrightarrow{AB}

(b) \overrightarrow{OB}

(c) \overrightarrow{OX}

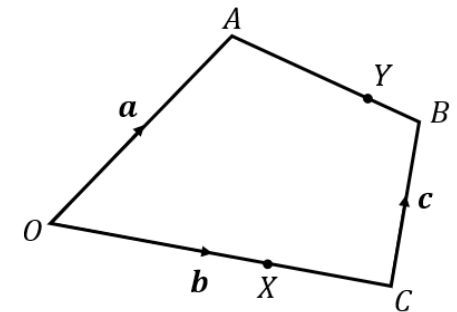
(d) \overrightarrow{BX}

(e) \overrightarrow{AX}

(f) \overrightarrow{XC}

(d)

$OABC$ is a quadrilateral. $\overrightarrow{OA} = \mathbf{a}$, $\overrightarrow{OC} = \mathbf{b}$ and $\overrightarrow{CB} = \mathbf{c}$. The point X divides the line OC in the ratio $2 : 1$. The point Y divides the line AB in the ratio $3 : 1$.



Express the following in terms of \mathbf{a} , \mathbf{b} and \mathbf{c} :

(a) \overrightarrow{OX}

(b) \overrightarrow{XC}

(c) \overrightarrow{AB}

(d) \overrightarrow{AY}

(e) \overrightarrow{AX}

(f) \overrightarrow{XY}