

8 With respect to an origin O , the position vectors of the points A and B are

$$\overrightarrow{OA} = \begin{pmatrix} -3 \\ 20 \end{pmatrix} \text{ and } \overrightarrow{OB} = \begin{pmatrix} 6 \\ 8 \end{pmatrix}.$$

(a) Determine whether $|\overrightarrow{AB}| > 200$. **[2]**

The point C is such that $\overrightarrow{AC} = \begin{pmatrix} 18 \\ -24 \end{pmatrix}$.

(b) Determine whether A , B and C are collinear. **[2]**