Vectors GREEN

1. Group the following into sets of parallel vectors. Justify your decisions.

 $2a + b$$2p + q$$2a- b$$4b + 8a$

 $10a-5b$$-b-2a$$\frac{1}{2}q +p$

2. In triangle $ABC$, $\vec{AB}=a$ and $\vec{AC}=b$. $P$ is the midpoint of $AB$ and $Q$ is the midpoint of $BC$.

 a) Write in terms of $a$ and $b$:

 i) $\vec{BC}$ ii) $\vec{AP}$ iii) $\vec{AQ}$ iv) $\vec{PQ}$

 \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

 b) Show that $PQ$ is parallel to $AC$.

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3. $OABC$ is a quadrilateral. $\vec{OA}=a$**,** $\vec{OC}=3b$ and $\vec{OB}=a+2b$.

 a) Find, in terms of $a$and$b$:

 i) $\vec{AB}$ ii) $\vec{CB}$

 \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

 b) Show that $AB$ is parallel to $OC$.

4. The vectors $2a + kb$ and $5a + 3b$ are parallel. Find the value of $k$.

Vectors AMBER

1. Group the following into sets of parallel vectors. Justify your decisions.

Start by factorising any vectors that can be factorised

 $2a + b$$2p + q$$2a- b$$4b + 8a$

 $10a-5b$$-b-2a$$\frac{1}{2}q +p$

2. In triangle $ABC$, $\vec{AB}=a$ and $\vec{AC}=b$. $P$ is the midpoint of $AB$ and $Q$ is the midpoint of $BC$.

Try sketching and labelling a larger version of this diagram

 a) Write in terms of $a$ and $b$:

 i) $\vec{BC}$ ii) $\vec{AP}$ iii) $\vec{AQ}$ iv) $\vec{PQ}$

 \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

Look for a common factor

 b) Show that $PQ$ is parallel to $AC$.

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3. $OABC$ is a quadrilateral. $\vec{OA}=a$**,** $\vec{OC}=3b$ and $\vec{OB}=a+2b$.

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 a) Find, in terms of $a$and$b$:

 i) $\vec{AB}$ ii) $\vec{CB}$

 \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

Look for a common factor

 b) Show that $AB$ is parallel to $OC$.

4. The vectors $2a + kb$ and $5a + 3b$ are parallel. Find the value of $k$.

Factorise both vectors and compare

Vectors RED

1. Group the following into sets of parallel vectors. Justify your decisions.

Start by factorising any vectors that can be factorised

 $2a + b$$2p + q$$2a- b$$4b + 8a$

 $10a-5b$$-b-2a$$\frac{1}{2}q +p$

2. In triangle $ABC$, $\vec{AB}=a$ and $\vec{AC}=b$. $P$ is the midpoint of $AB$ and $Q$ is the midpoint of $BC$.

Try sketching and labelling a larger version of this diagram

 a) Write in terms of $a$ and $b$:

 i) $\vec{BC}$ ii) $\vec{AP}$ iii) $\vec{AQ}$ iv) $\vec{PQ}$

 \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

Look for a common factor

 b) Show that $PQ$ is parallel to $AC$.

 $\vec{PQ}=$ \_\_\_\_\_\_\_\_\_\_ = \_\_ ( \_\_\_\_\_\_\_\_\_ )

 $\vec{BC}=$ \_\_\_\_\_\_\_\_\_\_ = \_\_ ( \_\_\_\_\_\_\_\_\_ )

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3. $OABC$ is a quadrilateral. $\vec{OA}=a$**,** $\vec{OC}=3b$ and $\vec{OB}=a+2b$.

Try sketching and labelling a larger version of this diagram

 a) Find, in terms of $a$and$b$:

 i) $\vec{AB}$ ii) $\vec{CB}$

 \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

Look for a common factor

 b) Show that $AB$ is parallel to $OC$.

$\vec{AB}=$ \_\_\_\_\_\_\_\_\_\_ = \_\_ ( \_\_\_\_\_\_\_\_\_ )

 $\vec{OC}=$ \_\_\_\_\_\_\_\_\_\_ = \_\_ ( \_\_\_\_\_\_\_\_\_ )

4. The vectors $2a + kb$ and $5a + 3b$ are parallel. Find the value of $k$.

Factorise both vectors and compare