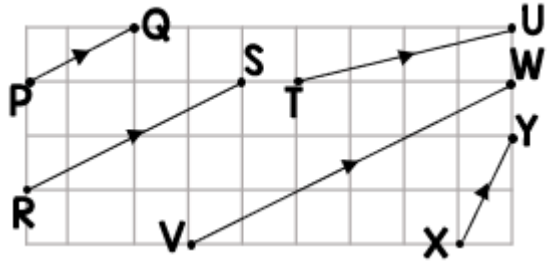
Summer Term Maths Year 10

Parallel Column Vectors

Day 1

Week 8

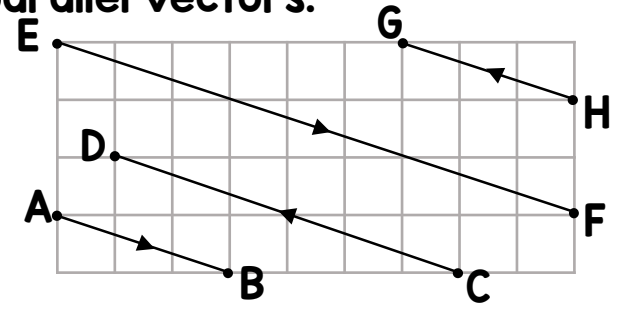
1 (a) Which vectors are parallel to $\overrightarrow{PQ}$?



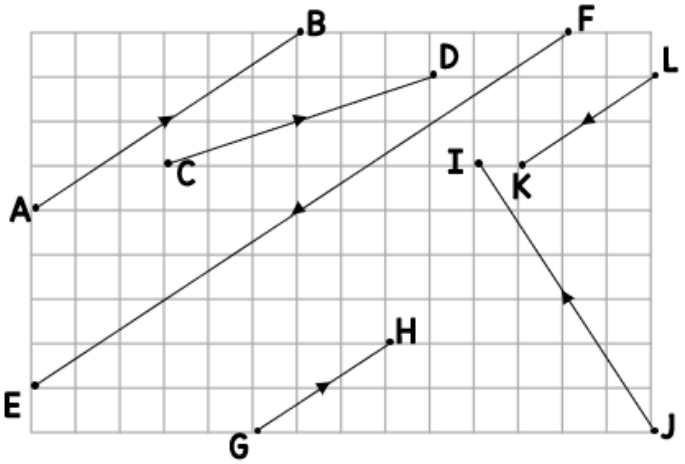
(b) $\overrightarrow{PQ} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$

Write your answers to (a) as column vectors too.

2 Write the column vectors for each of these parallel vectors.



3 (a) Identify the parallel vectors in this diagram and express them as column vectors.



(b) Which one of these vectors is also parallel to those in (a)? Explain your reasoning.

$\begin{pmatrix} 2 \\ 3 \end{pmatrix}$ $\begin{pmatrix} -4 \\ 6 \end{pmatrix}$ $\begin{pmatrix} -9 \\ -6 \end{pmatrix}$ $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$

White Rose Maths

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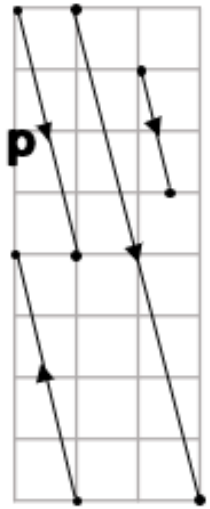
4 Complete the multiplication of p by different scalars, you may wish to use the diagram to help you.

$\mathbf{p} = \begin{pmatrix} 1 \\ -4 \end{pmatrix}$

$2\mathbf{p} = 2\begin{pmatrix} 1 \\ -4 \end{pmatrix} =$

$-\mathbf{p} = -1\begin{pmatrix} 1 \\ -4 \end{pmatrix} =$

$\frac{1}{2}\mathbf{p} = \frac{1}{2}\begin{pmatrix} 1 \\ -4 \end{pmatrix} =$



5 Which vectors below are parallel to $\begin{pmatrix} -5 \\ 2 \end{pmatrix}$?

$\begin{pmatrix} 2 \\ -5 \end{pmatrix}$ $\begin{pmatrix} -10 \\ 4 \end{pmatrix}$ $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$ $\begin{pmatrix} 15 \\ 6 \end{pmatrix}$ $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$

6 If $\mathbf{w} = \begin{pmatrix} 6 \\ -2 \end{pmatrix}$ then find:

(a) 4w (b) -2w (c) 1.5w

(d) -0.5w (e) $\frac{2}{3}$w (f) $-\frac{1}{4}$w

7 Complete the missing values in the table.

x	y	Scalar multiple (from x to y)
$\begin{pmatrix} -3 \\ 5 \end{pmatrix}$	$\begin{pmatrix} -18 \\ 30 \end{pmatrix}$	
$\begin{pmatrix} -4 \\ -7 \end{pmatrix}$	$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$	$\frac{1}{2}$
$\begin{pmatrix} -2 \\ \quad \end{pmatrix}$	$\begin{pmatrix} 8 \\ -20 \end{pmatrix}$	
$\begin{pmatrix} \quad \\ -5 \end{pmatrix}$	$\begin{pmatrix} 15 \\ \quad \end{pmatrix}$	-2.5

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