Vectors

1. Sketch the following vectors on a square grid

a. $\begin{pmatrix}5\\4\end{pmatrix}$ b. $\begin{pmatrix}6\\3\end{pmatrix}$ c. $\begin{pmatrix}5\\-4\end{pmatrix}$ d. $\begin{pmatrix}-4\\5\end{pmatrix}$ e. $\begin{pmatrix}-7\\-5\end{pmatrix}$

2. There vectors are $p = \begin{pmatrix}2\\3\end{pmatrix}$, $q = \begin{pmatrix}0\\7\end{pmatrix}$ and $r = \begin{pmatrix}4\\-5\end{pmatrix}$

Find the resultant vector:

a. $p + q$ b. $p - q$ c. $p - r$ d. $3q$

e. $5q$ f. $3p + 5q$ g. $5p + 3r$ h. $4q - 5r$

3. Find:

a. $\left|\begin{pmatrix}8\\15\end{pmatrix}\right|$ b. $\left|\begin{pmatrix}-8\\15\end{pmatrix}\right|$ c. $\left|\begin{pmatrix}6\\8\end{pmatrix}\right|$ d. $\left|\begin{pmatrix}9\\12\end{pmatrix}\right|$

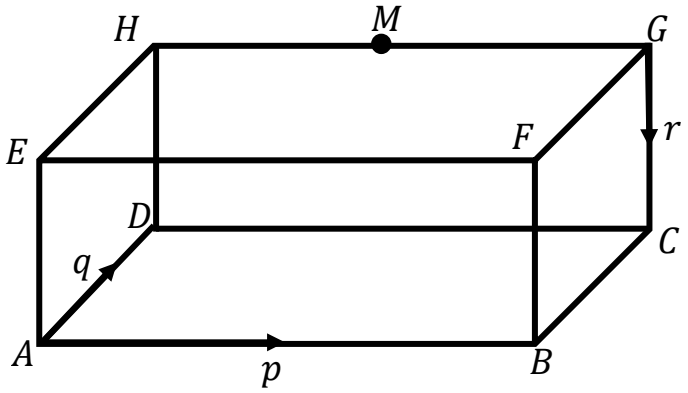
e. $\left|\begin{pmatrix}5\\7\\10\end{pmatrix}\right|$ f. $\left|\begin{pmatrix}-3\\5\\6\end{pmatrix}\right|$ g. $\left|\begin{pmatrix}-5\\7\\-3\end{pmatrix}\right|$ h. $\left|\begin{pmatrix}0\\7\\-10\end{pmatrix}\right|$

4. Find the distance between the following sets of coordinates.

a. $(7, 8)$ and $(10, 3)$ b. $(-3, 7)$ and $(8, 3)$ c. $(-7, 2)$ and $(1, -4)$

d. $(3, 4, 5)$ and $(7, 9, 6)$ e. $(-1, 2, -7)$ and $(6, 1, -7)$ f. $(6, 4, 8)$ and $(-2, -4, 0)$

5. Below is cuboid $ABCDEFGH$, where M is the mid point of GH.



Write the following pathways in terms of r, s, and t.

a. $\overrightarrow{AB}$ b. $\overrightarrow{AC}$ c. $\overrightarrow{EG}$ d. $\overrightarrow{GH}$ e. $\overrightarrow{CG}$ f. $\overrightarrow{BH}$ g. $\overrightarrow{AM}$