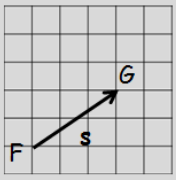
Outcome 2 – Working with 2D Vectors, 3D Coordinates & Vector Journeys

Bronze examples

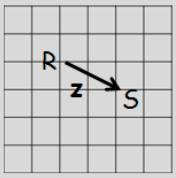
Examples...



This vector can be named in 2 ways. $\overrightarrow{FG}$ or $\underline{s}$

It's components are... $\begin{pmatrix}3\\2\end{pmatrix}$

This vector can be named in 2 ways. $\overrightarrow{RS}$ or $\underline{z}$

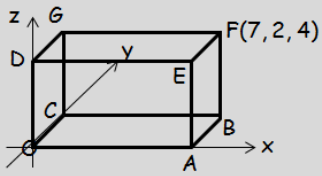


It's components are... $\begin{pmatrix}2\\-1\end{pmatrix}$

Silver example

Examples...

The diagram shows a cuboid ABCDEFG.



Point F has coordinates (9, 3, 5). What are the coordinates of the other points?

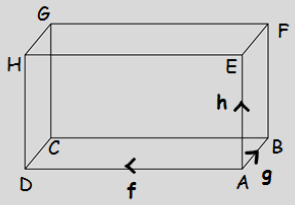
O(0, 0, 0) C(0, 2, 0)
A(7, 0, 0) D(0, 0, 4)
B(7, 2, 0) E(7, 0, 4)
G(0, 2, 4)

Gold example

Examples...

The diagram represents a cuboid.
$\overrightarrow{AD}$ represents vector **f**,
$\overrightarrow{AB}$ represents vector **g** and
$\overrightarrow{AE}$ represents vector **h**.

Express $\overrightarrow{GE}$ and $\overrightarrow{DF}$ in terms of **f**, **g** and **h**.

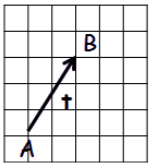


$\overrightarrow{GE} = -\mathbf{f} - \mathbf{g}$ $\overrightarrow{DF} = -\mathbf{f} + \mathbf{g} + \mathbf{h}$

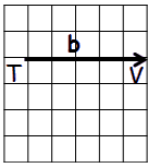
Bronze Questions

Name each of these vectors in 2 ways and write down their components.

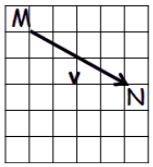
1



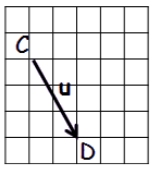
2



3

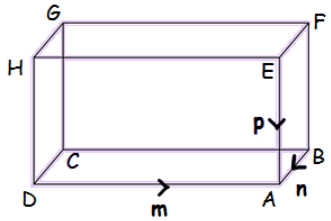


4



Gold Questions

The diagram below represents a cuboid.
$\overrightarrow{DA}$ represents vector **m**, $\overrightarrow{BA}$ represents vector **n** and $\overrightarrow{EA}$ represents vector **p**.



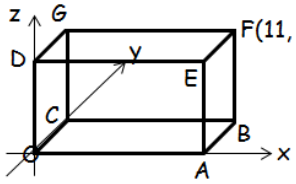
Express...

1 $\overrightarrow{CB}$ 2 $\overrightarrow{AH}$ 3 $\overrightarrow{HB}$

in terms of **m**, **n** and **p**.

Silver Questions

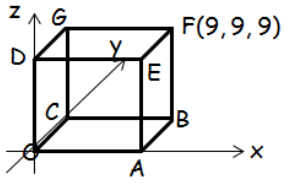
1



The diagram shows a cuboid ABCDEFG.

Point F has coordinates (11, 4, 5). What are the coordinates of the other points?

2



The diagram shows a cube ABCDEFG.

Point F has coordinates (9, 9, 9). What are the coordinates of the other points?

Bronze Answers

1. $\overrightarrow{AB}$ $\underline{t}$ $\begin{pmatrix}2\\3\end{pmatrix}$ 2. $\overrightarrow{TV}$ $\underline{b}$ $\begin{pmatrix}5\\0\end{pmatrix}$

3. $\overrightarrow{MN}$ $\underline{v}$ $\begin{pmatrix}4\\-2\end{pmatrix}$ 4. $\overrightarrow{CD}$ $\underline{u}$ $\begin{pmatrix}2\\-3\end{pmatrix}$

Silver Answers

1. O(0, 0, 0), A(11, 0, 0), B(11, 4, 0), C(0, 4, 0)
   D(0, 0, 5), E(11, 0, 5), G(0, 4, 5)

2. O(0, 0, 0), A(9, 0, 0), B(9, 9, 0), C(0, 9, 0)
   D(0, 0, 9), E(9, 0, 9), G(0, 9, 9)

Gold Answers

1. **m** 2. **- m - p** 3. **m - n + p**