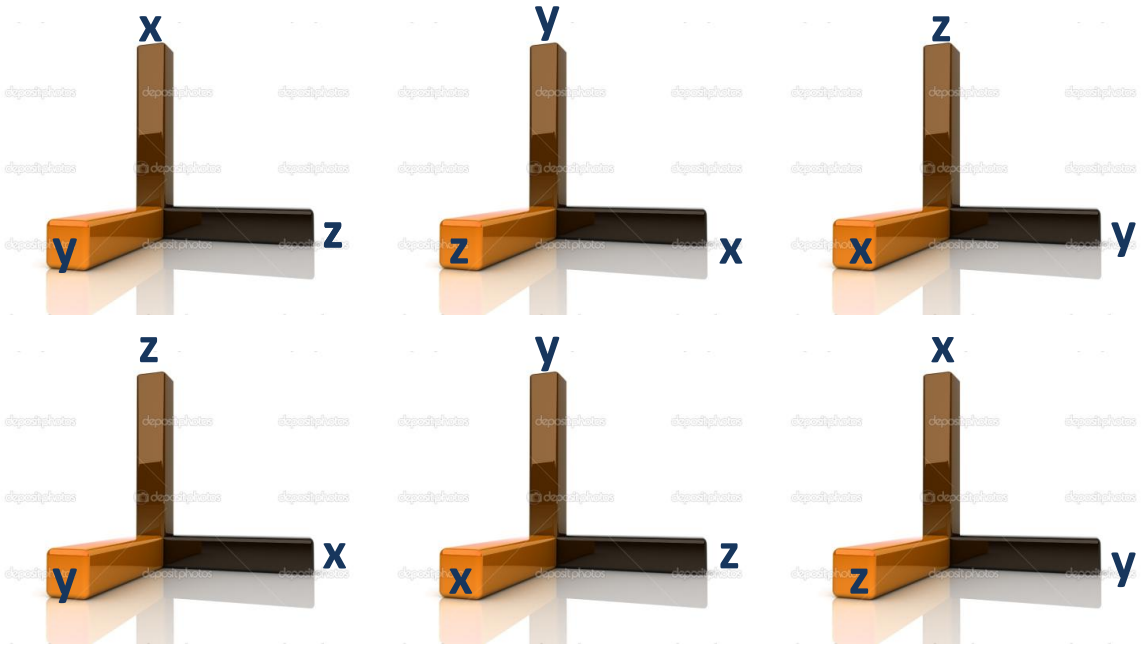
Vectors 2

1/ Which of the following are correct orientations of the x, y, and z axes by the right hand rule:



2/ Calculate the sum of the vectors

i) $\vec{A} = 3\vec{x} + 2\vec{y} - \vec{z}$ and $\vec{B} = 5\vec{x} - \vec{y} + 4\vec{z}$.

ii) $\vec{A} = 4\vec{x} + 3\vec{y} - \vec{z}$ and $\vec{B} = -\vec{x} + 5\vec{y} + 3\vec{z}$.

iii) $\vec{A} = -5\vec{x} + 4\vec{y} - 2\vec{z}$ and $\vec{B} = 4\vec{x} - 4\vec{y} + 2\vec{z}$.

3/ Calculate the magnitude of the three dimensional vectors

i) $\vec{A} = -\vec{x} + 4\vec{y} + 4\vec{z}$

ii) $\vec{A} = 2\vec{x} + 2\vec{y} - 4\vec{z}$

iii) $\vec{A} = \vec{x} + 2\vec{y} - 2\vec{z}$

[5.745, 4.899, 3]

4/ Calculate the dot product of vectors $\vec{A} = -5\vec{x} - 2\vec{y} - 2\vec{z}$ and $\vec{B} = \vec{x} + \vec{y} + 3\vec{z}$.

[-13]

5/ Calculate the cross product of the vectors $\vec{A} = -2\vec{x} + \vec{y} + \vec{z}$ and $\vec{B} = 4\vec{x} + 2\vec{y} + 4$.

$$\mathbf{[2\vec{x} + 12\vec{y} - 8\vec{z}]}$$

6/ Calculate the cross product of the vectors $\vec{A} = -\overrightarrow{2x} + 3\vec{y} - \vec{z}$ and $\vec{B} = -3\vec{x} + \overrightarrow{2y} + \vec{z}$.

$$\mathbf{[\overrightarrow{5x} + 5\vec{y} + 5\vec{z}]}$$

7/ Calculate the angle between vectors $\vec{A} = -\vec{x} - 2\vec{y} + 4\vec{z}$ and $\vec{B} = 2\vec{x} + \vec{y} + \vec{z}$.

[90°]