

High School Vectors Test Questions:

- $\left[\frac{2}{3} \quad -\frac{2}{3} \quad \frac{1}{3} \right]$ is a unit vector. True or False
- The vectors $\left[2 \quad 4 \quad 8 \right]$ and $\left[4 \quad 7 \quad -4 \right]$ are perpendicular. True or False
- If the vector $\left[a \quad b \quad c \right]$ is perpendicular to both of the vectors $\left[1 \quad -1 \quad 1 \right]$ and $\left[1 \quad 0 \quad -1 \right]$ then $b = 2a$. True or False
- The angle between the two vectors $\left[2 \quad -3 \quad 1 \right]$ and $\left[1 \quad 6 \quad 2 \right]$ is in the third quadrant. True or False
- The equation of the plane passing through the three points $(1, 3, 3)$, $(2, 3, 5)$ and $(1, 1, 1)$ is $2x + y - z = 2$. True or False
- The points with coordinates $(1, 2, -3)$, $(1, -2, -3)$ and $(1, 2, 0)$ are the vertices of a right angled triangle. True or False
- Suppose the angle between the two non-zero vectors \vec{u} and \vec{v} is θ . Which of the following statements is not true?
 - $\|\vec{u} \times \vec{v}\| = \|\vec{u}\|\|\vec{v}\| \sin \theta$
 - $\vec{v} \cdot \vec{u} = \|\vec{v}\|\|\vec{u}\| \cos \theta$
 - $\vec{u} \times \vec{v} = \vec{v} \times \vec{u}$
 - $\|\vec{u} + \vec{v}\|^2 = \|\vec{u}\|^2 + \|\vec{v}\|^2 \Leftrightarrow \vec{u} \cdot \vec{v} = 0$
- The lines with parametric equations $\begin{bmatrix} x & y & z \end{bmatrix} = \begin{bmatrix} 1+t & -t & 2+t \end{bmatrix}$ and $\begin{bmatrix} x & y & z \end{bmatrix} = \begin{bmatrix} u & 5-3u & 1+u \end{bmatrix}$, for parameters t and u , intersect at the point
 - $(2, -1, 3)$
 - $(1, -5, 2)$
 - $(1, -1, 1)$
 - $(1, -3, 1)$
- The line with parametric equations $\begin{bmatrix} x & y & z \end{bmatrix} = \begin{bmatrix} 1+t & 4t & 2+t \end{bmatrix}$ intersects the plane with equation $4x - y + 2z = 4$ at the point
 - $(3, 8, 4)$
 - $(-1, -8, 0)$
 - $(1, -2, -1)$
 - $(2, 0, -2)$
- The minimum distance from the point with coordinates $(1, -1, 1)$ to the plane with equation $x + y + z = 4$ is
 - 3
 - $\frac{1}{\sqrt{3}}$
 - $\sqrt{3}$
 - $\frac{1}{3}$