

Fill in the Blanks

3D Vectors

Coordinates of Point A	Position Vector $\vec{OA}$	Coordinates of Point B	Position Vector $\vec{OB}$	$\vec{AB}$	$ \vec{AB} $	Unit Vector in direction $\vec{AB}$	Angle $\vec{AB}$ makes with positive x -axis	Angle $\vec{AB}$ makes with positive z -axis
$(1, 5, 2)$	$\begin{pmatrix} 1 \\ 5 \\ 2 \end{pmatrix}$	$(4, 3, 3)$	$\begin{pmatrix} 4 \\ 3 \\ 3 \end{pmatrix}$	$\begin{pmatrix} 3 \\ -2 \\ 1 \end{pmatrix}$	$\sqrt{14}$	$\frac{1}{\sqrt{14}} \begin{pmatrix} 3 \\ -2 \\ 1 \end{pmatrix}$	36.7°	74.5°
$(3, 1, -1)$	$\begin{pmatrix} 3 \\ 1 \\ -1 \end{pmatrix}$	$(-4, 2, -3)$	$\begin{pmatrix} -4 \\ 2 \\ -3 \end{pmatrix}$	$\begin{pmatrix} -7 \\ 1 \\ -2 \end{pmatrix}$	$3\sqrt{6}$	$\frac{1}{3\sqrt{6}} \begin{pmatrix} -7 \\ 1 \\ -2 \end{pmatrix}$	162.3°	105.8°
$(0, -2, -3)$	$\begin{pmatrix} 0 \\ -2 \\ -3 \end{pmatrix}$	$(-3, 1, 1)$	$\begin{pmatrix} -3 \\ 1 \\ 1 \end{pmatrix}$	$\begin{pmatrix} -3 \\ 3 \\ 4 \end{pmatrix}$	$\sqrt{34}$	$\frac{1}{\sqrt{34}} \begin{pmatrix} -3 \\ 3 \\ 4 \end{pmatrix}$	121.0°	46.7°
$(4, -2, -4)$	$\begin{pmatrix} 4 \\ -2 \\ -4 \end{pmatrix}$	$(4, -1, 0)$	$\begin{pmatrix} 4 \\ -1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 0 \\ 1 \\ 4 \end{pmatrix}$	$\sqrt{17}$	$\frac{1}{\sqrt{17}} \begin{pmatrix} 0 \\ 1 \\ 4 \end{pmatrix}$	90°	14.0°
$(-9, 6, -4)$	$\begin{pmatrix} -9 \\ 6 \\ -4 \end{pmatrix}$	$(-3, 4, -1)$	$\begin{pmatrix} -3 \\ 4 \\ -1 \end{pmatrix}$	$\begin{pmatrix} 6 \\ -2 \\ 3 \end{pmatrix}$	7	$\frac{1}{7} \begin{pmatrix} 6 \\ -2 \\ 3 \end{pmatrix}$	31.0°	64.6°
$(1.5, -0.5, 3)$	$\begin{pmatrix} 1.5 \\ -0.5 \\ 3 \end{pmatrix}$	$(2.5, -1.5, 4)$	$\begin{pmatrix} 2.5 \\ -1.5 \\ 4 \end{pmatrix}$	$\begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}$	$\sqrt{3}$	$\frac{1}{\sqrt{3}} \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}$	54.7°	54.7°
$(-6, 2, \sqrt{3})$	$\begin{pmatrix} -6 \\ 2 \\ \sqrt{3} \end{pmatrix}$	$(-5, 2, \sqrt{3})$	$\begin{pmatrix} -5 \\ 2 \\ 2\sqrt{3} \end{pmatrix}$	$\begin{pmatrix} 1 \\ 0 \\ \sqrt{3} \end{pmatrix}$	2	$\frac{1}{2} \begin{pmatrix} 1 \\ 0 \\ \sqrt{3} \end{pmatrix}$	60°	30°