

Match-Up	Vector Equation of a Line in 3D
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1	The line that passes through the point $(3, 1, 2)$ with direction vector $\begin{pmatrix} 5 \\ 6 \\ -3 \end{pmatrix}$
2	The line with direction vector $-3\mathbf{i} + 5\mathbf{j} - 6\mathbf{k}$ that passes through the point with position vector $\mathbf{i} + 2\mathbf{j} - 3\mathbf{k}$
3	The line that passes through the points $(3, -1, 2)$ and $(8, 5, 5)$
4	The line that is parallel to the vector $\begin{pmatrix} 8 \\ 5 \\ 5 \end{pmatrix}$ and passes through the point $(-3, 1, -2)$
5	The line where a general point on the line has coordinates $(5\lambda - 3, 1 - 6\lambda, 2 + 3\lambda)$
6	The line that passes through $(3, -1, 2)$ and is parallel to the line with equation $\mathbf{r} = (5 - 8\lambda)\mathbf{i} + (6 + 5\lambda)\mathbf{j} + (3 - 5\lambda)\mathbf{k}$
7	The line that passes through $(-2, 1, 3)$ that is parallel to the line passing through $(-8, 4, 1)$ and $(-3, 10, -2)$
8	The line that passes through A and B where $\overrightarrow{OA} = 3\mathbf{i} - 5\mathbf{j} + 6\mathbf{k}$ and $\overrightarrow{OB} = 8\mathbf{i} - 5\mathbf{j} + 5\mathbf{k}$
9	The line that passes through the midpoint of $(-3, 1, 2)$ and $(5, 3, -6)$ that has direction vector $-5\mathbf{i} - \mathbf{j} + \mathbf{k}$
10	The line that passes through the point with position vector $5\mathbf{i} + \mathbf{k}$ and the point with position vector $-11\mathbf{i} + 10\mathbf{j} - 9\mathbf{k}$

A	$\mathbf{r} = \begin{pmatrix} -3 \\ 1 \\ -2 \end{pmatrix} + \lambda \begin{pmatrix} 8 \\ 5 \\ 5 \end{pmatrix}$
B	$\frac{x+2}{5} = \frac{y-1}{6} = \frac{z-3}{-3}$
C	$\frac{x-3}{-8} = \frac{y+1}{5} = \frac{z-2}{-5}$
D	$\mathbf{r} = \begin{pmatrix} 3 \\ 1 \\ 2 \end{pmatrix} + \lambda \begin{pmatrix} 5 \\ 6 \\ -3 \end{pmatrix}$
E	$\frac{x-1}{-5} = 2 - y = z + 2$
F	$\mathbf{r} = \begin{pmatrix} 8 \\ -5 \\ 5 \end{pmatrix} + \lambda \begin{pmatrix} 5 \\ 0 \\ -1 \end{pmatrix}$
G	$\frac{x-3}{5} = \frac{y+1}{6} = \frac{z-2}{3}$
H	$\mathbf{r} = \begin{pmatrix} -3 \\ 1 \\ 2 \end{pmatrix} + \lambda \begin{pmatrix} 5 \\ -6 \\ 3 \end{pmatrix}$
I	$\frac{x-5}{8} = \frac{y}{-5} = \frac{z-1}{5}$
J	$\frac{x-1}{-3} = \frac{y-2}{5} = \frac{z+3}{-6}$

[illegible]