Match-Up	Vector Equation of a Line in 3D

1	The line that passes through the point $(3,1,2)$ with direction vector $\begin{pmatrix}5\\6\\-3\end{pmatrix}$	**A**	$\boldsymbol{r}=\begin{pmatrix}-3\\1\\-2\end{pmatrix}+\lambda\begin{pmatrix}8\\5\\5\end{pmatrix}$
2	The line with direction vector $-3\boldsymbol{i}+5\boldsymbol{j}-6\boldsymbol{k}$ that passes through the point with position vector $\boldsymbol{i}+2\boldsymbol{j}-3\boldsymbol{k}$	**B**	$\frac{x+2}{5}=\frac{y-1}{6}=\frac{z-3}{-3}$
3	The line that passes through the points $(3,-1,2)$ and $(8,5,5)$	**C**	$\frac{x-3}{-8}=\frac{y+1}{5}=\frac{z-2}{-5}$
4	The line that is parallel to the vector $\begin{pmatrix}8\\5\\5\end{pmatrix}$ and passes through the point $(-3,1,-2)$	**D**	$\boldsymbol{r}=\begin{pmatrix}3\\1\\2\end{pmatrix}+\lambda\begin{pmatrix}5\\6\\-3\end{pmatrix}$
5	The line where a general point on the line has coordinates $(5\lambda-3,1-6\lambda,2+3\lambda)$	**E**	$\frac{x-1}{-5}=2-y=z+2$
6	The line that passes through $(3,-1,2)$ and is parallel to the line with equation $\boldsymbol{r}=(5-8\lambda)\boldsymbol{i}+(6+5\lambda)\boldsymbol{j}+(3-5\lambda)\boldsymbol{k}$	**F**	$\boldsymbol{r}=\begin{pmatrix}8\\-5\\5\end{pmatrix}+\lambda\begin{pmatrix}5\\0\\-1\end{pmatrix}$
7	The line that passes through $(-2,1,3)$ that is parallel to the line passing through $(-8,4,1)$ and $(-3,10,-2)$	**G**	$\frac{x-3}{5}=\frac{y+1}{6}=\frac{z-2}{3}$
8	The line that passes through A and B where $\overrightarrow{OA}=3\boldsymbol{i}-5\boldsymbol{j}+6\boldsymbol{k}$ and $\overrightarrow{OB}=8\boldsymbol{i}-5\boldsymbol{j}+5\boldsymbol{k}$	**H**	$\boldsymbol{r}=\begin{pmatrix}-3\\1\\2\end{pmatrix}+\lambda\begin{pmatrix}5\\-6\\3\end{pmatrix}$
9	The line that passes through the midpoint of $(-3,1,2)$ and $(5,3,-6)$ that has direction vector $-5\boldsymbol{i}-\boldsymbol{j}+\boldsymbol{k}$	**I**	$\frac{x-5}{8}=\frac{y}{-5}=\frac{z-1}{5}$
10	The line that passes through the point with position vector $5\boldsymbol{i}+\boldsymbol{k}$ and the point with position vector $-11\boldsymbol{i}+10\boldsymbol{j}-9\boldsymbol{k}$	**J**	$\frac{x-1}{-3}=\frac{y-2}{5}=\frac{z+3}{-6}$

1	2	3	4	5	6	7	8	9	10
D	J	G	A	H	C	B	F	E	I