Match-Up — Shortest Distance

1	Find the shortest distance from the point $(-7,\ -1,\ 2)$ to the line with equation $\boldsymbol{r} = \begin{pmatrix} -4 \\ 1 \\ 2 \end{pmatrix} + \lambda \begin{pmatrix} 3 \\ 1 \\ -1 \end{pmatrix}$	**A**	$5\sqrt{5}$
2	Find the shortest distance from the point with position vector $7\boldsymbol{i} + 5\boldsymbol{j} + 3\boldsymbol{k}$ to the plane with equation $x + 2y - z = 8$	**B**	$\sqrt{13}$
3	Find the shortest distance from the point $(-1,\ 4,\ 8)$ to the line with equation $\frac{x-5}{3} = \frac{y-3}{2} = \frac{z+4}{-1}$	**C**	$3\sqrt{6}$
4	Find the shortest distance between the parallel lines $\boldsymbol{r_1} = \begin{pmatrix} 1 \\ -2 \\ -11 \end{pmatrix} + \lambda \begin{pmatrix} -1 \\ 4 \\ 1 \end{pmatrix}$ and $\boldsymbol{r_2} = \begin{pmatrix} -1 \\ 0 \\ -3 \end{pmatrix} + \mu \begin{pmatrix} -1 \\ 4 \\ 1 \end{pmatrix}$	**D**	$\sqrt{2}$
5	Find the shortest distance from the point $(9, 0, -3)$ to the plane with equation $r. \begin{pmatrix} 2 \\ -2 \\ 1 \end{pmatrix} = 9$	**E**	$5\sqrt{6}$
6	Find the shortest distance between the skew lines $\boldsymbol{r_1} = \begin{pmatrix} 2+\lambda \\ 3+2\lambda \\ 4+3\lambda \end{pmatrix}$ and $\boldsymbol{r_2} = \begin{pmatrix} -10+2\mu \\ 3+3\mu \\ 4+4\mu \end{pmatrix}$	**F**	2
7	Find the shortest distance between the parallel lines $\boldsymbol{r_1} = -\boldsymbol{i} - 2\boldsymbol{j} + 4\boldsymbol{k} + \lambda(3\boldsymbol{i} - 2\boldsymbol{k})$ and $\boldsymbol{r_2} = 4\boldsymbol{i} - 2\boldsymbol{j} + 5\boldsymbol{k} + \mu(3\boldsymbol{i} - 2\boldsymbol{k})$	**G**	$\sqrt{6}$
8	Find the shortest distance between the skew lines $\boldsymbol{r_1} = \begin{pmatrix} 2 \\ -3 \\ 1 \end{pmatrix} + \lambda \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$ and $\boldsymbol{r_2} = \begin{pmatrix} -13 \\ 2 \\ -4 \end{pmatrix} + \mu \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$	**H**	$2\sqrt{6}$

1	2	3	4	5	6	7	8