True or False? Scalar Product

For each statement, circle the correct response.

1	Given that $\boldsymbol{a} = 4\boldsymbol{i} + 5\boldsymbol{j} - \boldsymbol{k}$ and $\boldsymbol{b} = -2\boldsymbol{i} - \boldsymbol{j} + 2\boldsymbol{k}$, the scalar product $\boldsymbol{a}.\boldsymbol{b} = 15$	True	False
2	$\boldsymbol{a} = -3\boldsymbol{i} + 6\boldsymbol{j} - 2\boldsymbol{k}$ and $\boldsymbol{b} = -\boldsymbol{i} + \lambda\boldsymbol{j} + 3\boldsymbol{k}$ Given that $\boldsymbol{a}.\boldsymbol{b} = 12$ then $\lambda = 2.5$	True	False
3	The vectors $\begin{pmatrix} 2 \\ 0 \\ -3 \end{pmatrix}$ and $\begin{pmatrix} 5 \\ -1 \\ 3 \end{pmatrix}$ are perpendicular	True	False
4	The vector $4\boldsymbol{i} + 2\boldsymbol{j} - \boldsymbol{k}$ is perpendicular to both $3\boldsymbol{i} - 5\boldsymbol{j} + 2\boldsymbol{k}$ and $3\boldsymbol{i} + 5\boldsymbol{j} - 2\boldsymbol{k}$	True	False
5	The acute angle between the vectors $2\boldsymbol{i} + \boldsymbol{j} - \boldsymbol{k}$ and $\boldsymbol{i} + 5\boldsymbol{j} + 2\boldsymbol{k}$ is $68.1°$	True	False
6	The angle between $\begin{pmatrix} -1 \\ 8 \\ 3 \end{pmatrix}$ and $\begin{pmatrix} -6 \\ -3 \\ 6 \end{pmatrix}$ is $90°$	True	False
7	The obtuse angle between the vectors $-5\boldsymbol{i} + \boldsymbol{j} - 2\boldsymbol{k}$ and $3\boldsymbol{i} - \boldsymbol{k}$ is $138.6°$	True	False
8	The angle between the vectors $2\boldsymbol{i} + \boldsymbol{j} - 2\boldsymbol{k}$ and $4\boldsymbol{i} + \lambda\boldsymbol{k}$ is θ. Given that $\cos\theta = \frac{2}{15}$ then $\lambda = -3$	True	False
9	$\overrightarrow{AB} = -\boldsymbol{i} + 3\boldsymbol{j} + 4\boldsymbol{k}$ $\overrightarrow{BC} = 2\boldsymbol{i} - 6\boldsymbol{j} + \boldsymbol{k}$ The angle BAC is $60.7°$	True	False
10	Three points A, B and C have coordinates $(3, 2, -2), (4, -1, 1)$ and $(0, 5, 3)$ respectively. The angle ABC is $60.6°$	True	False