LAFDS Session 1 Homework

Full Name: _____

Group No.: ____

Please write down all the steps not the final answer only

1. (1 point) The angle between the vectors (1, 0, −1, 3) and (1, $\sqrt{3}$, 3, −3) in $\mathbb{R}^4$ is aπ, where a = ____.

2. (1 point) Which of the angles (if any) of triangle ABC, with A = (1, −2, 0), B = (2, 1, −2), and C = (6, −1, −3), is a right angle? Answer: the angle at vertex _____.

3. (7 points) Practice with numbers (if there is no answer, say so)

   a. $\begin{bmatrix}1 & 2\\ 3 & 4\\ 5 & 6\end{bmatrix} + \begin{bmatrix}10 & 20\\ 30 & 40\\ 50 & 60\end{bmatrix}$

   b. $\begin{bmatrix}1 & 2\end{bmatrix}\begin{bmatrix}3\\ 4\end{bmatrix}$

   c. $\begin{bmatrix}1 & 2\end{bmatrix}\begin{bmatrix}3 & 0\\ 4 & 1\end{bmatrix}$

   d. $\begin{bmatrix}1 & 2\\ 10 & 20\end{bmatrix}\begin{bmatrix}3 & 0\\ 4 & 1\end{bmatrix}$

   e. $\begin{bmatrix}1 & 2 & 7\end{bmatrix}\begin{bmatrix}3\\ 4\end{bmatrix}$

   f. $\begin{bmatrix}3\\ 4\end{bmatrix}\begin{bmatrix}1 & 2 & 7\end{bmatrix}$

   g. $\begin{bmatrix}0 & 1 & 2\\ 10 & -10 & 5\end{bmatrix}\begin{bmatrix}1 & 2 & 3\\ 4 & 5 & 6\\ 7 & 8 & 9\end{bmatrix}$