Math 155A - Spring 2022 - Quiz #11 - May 12

Name:

PID:

1. Let $\mathbf{u} = \langle 1, 2, 3 \rangle$ and $\mathbf{v} = \langle 5, 2, 9 \rangle$.

(a) What is $Lerp(\mathbf{u}, \mathbf{v}, \frac{1}{3})$?

(b) What is $Lerp(\mathbf{v}, \mathbf{u}, \frac{2}{3})$?

(c) What is $Lerp(\mathbf{u}, \mathbf{v}, 1)$?

(d) What is $Lerp(\mathbf{u}, \mathbf{v}, -1)$?

(e) What value of α makes $Lerp(\mathbf{u}, \mathbf{v}, \alpha)$ equal to $\langle 2, 2, \frac{9}{2} \rangle$?

(f) Let L be the line containing $\mathbf{u}$ and $\mathbf{v}$. Let $\mathbf{z} = \langle 1, 2, 9 \rangle$. Find the value β such that $Lerp(\mathbf{u}, \mathbf{v}, \beta)$ is the point on the line L that is closest to $\mathbf{z}$.