

Math 233 - Quiz 2

January 29, 2026

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) P and Q are the points $(4, -1, 6)$ and $(-2, -3, 5)$, respectively. Find a vector of length 8 that is parallel to \vec{PQ} . How many different answers are possible? Briefly explain.
2. (3 points) Determine the measure of the angle between the vectors $\vec{x} = 4\hat{i} - 7\hat{j} - 2\hat{k}$ and $\vec{y} = 5\hat{i} + 2\hat{j} + 8\hat{k}$. Write your final answer in degrees, rounded to the nearest hundredth.
3. (2 points) Compute the projection of $\vec{w} = \hat{i} + 3\hat{j} - 5\hat{k}$ onto $\vec{z} = -5\hat{i} - \hat{j} + 6\hat{k}$.
4. (2 points) What does it mean for two vectors \vec{a} and \vec{b} to be parallel? What does it mean for two vectors \vec{p} and \vec{q} to be orthogonal?