

Math 233 - Quiz 2

August 28, 2025

Name _____

Score _____

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

1. (1 point) What does it mean for two vectors \vec{x} and \vec{y} to be parallel?
2. (2 points) Find a vector of magnitude 15 that has the opposite direction of \vec{PQ} , where $P(3, 2, -5)$ and $Q(1, 4, -2)$.
3. (3 points) Determine the measure of the angle between the vectors $\vec{a} = 3\hat{i} + 4\hat{j} - 9\hat{k}$ and $\vec{b} = 2\hat{j} + 8\hat{k}$. Write your final answer in degrees, rounded to the nearest hundredth.
4. (2 points) If $\vec{u} \cdot \vec{v} = \vec{u} \cdot \vec{w}$, must it be true that $\vec{v} = \vec{w}$? Explain.
5. (2 points) Find a unit vector that is orthogonal to $\vec{w} = \langle 3, -2, -1 \rangle$.