Math 233 - Quiz 3

Name _____

February 2, 2023

Score _____

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

1. (3 points) Find a unit vector that is orthogonal to both $\vec{u} = \hat{\imath} - 2\hat{\jmath} + 3\hat{k}$ and $\vec{v} = -4\hat{\imath} + 2\hat{\jmath} + \hat{k}$.

2. (3 points) Find a set of parametric equations for the line segment from $P\,(1, -4, 3)$ to $Q\,(6, 5, 1)$.

3. (2 points) A line is described by the symmetric equations $\dfrac{x+2}{5} = \dfrac{7-y}{2} = z - 8$. Find a point on the line, and find a vector parallel to the line.

4. (2 points) Find a unit vector that is normal to the plane given by the $2x + y - 3z = 8$.