

Math 275
Written Assignment
Due at the beginning of class
Monday, 30 August

BE SURE TO USE THE REQUIRED STYLE SHEET

- (1) Find a vector 2 units long in the direction of $\mathbf{v} = \langle 3, -1, 6 \rangle$
- (2) Let $\mathbf{v} = 2\mathbf{i} + 2\mathbf{j} - \mathbf{k}$ and $\mathbf{u} = \mathbf{i} + \mathbf{j} - 2\mathbf{k}$. Find $|\mathbf{v}|$, $|\mathbf{u}|$, $\mathbf{v} \cdot \mathbf{u}$, $\mathbf{u} \cdot \mathbf{v}$, $\mathbf{v} \times \mathbf{u}$, $\mathbf{u} \times \mathbf{v}$, the angle between \mathbf{u} and \mathbf{v} , the scalar component of \mathbf{v} in the direction of \mathbf{u} and the vector projection of \mathbf{u} onto \mathbf{v} .
- (3) Sketch the graph of $x^2 + 4x + z^2 - 6z = 0$ in three-space (aka \mathbb{R}^3).
- (4) Show the vector $\mathbf{v} = a\mathbf{i} + b\mathbf{j}$ is parallel to the line $ay - bx = c$. (Think slopes.)
- (5) Find the vector from the point $P(-2, 3, 2)$ to the point $Q(6, 3, 5)$.