**Instructions**: Show all work. Use exact answers unless otherwise asked to round.

- 1. Use  $\vec{u} = \langle 1, 3, -4 \rangle$ ,  $\vec{v} = \langle 2, -5, 1 \rangle$  to find the following.
  - a. Find  $\vec{u} + \vec{v}$ , then graph  $\vec{u}$ ,  $\vec{v}$  and  $\vec{u} + \vec{v}$  on the same graph.

- b.  $\|\vec{u}\|$
- c. Write a unit vector in the direction of  $\vec{u}$

- d. Find  $\vec{u} \cdot \vec{v}$
- e. Find the angle between  $\vec{u}$  and  $\vec{v}$

f. Find  $\vec{u} \times \vec{v}$