

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

1. Use $\vec{u} = \langle 4, -2 \rangle$, $\vec{v} = \langle 1, 3 \rangle$ 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}
2. Use $\vec{u} = \langle 2, -1, 3 \rangle$, $\vec{v} = \langle -1, 4, 0 \rangle$ to find $2\vec{u} - \vec{v}$.
3. Given the points $P(1, 2, 3)$, $Q(-1, 0, 4)$, $R(0, 1, 2)$, find the following:
 - a. The vectors \overrightarrow{PQ} , \overrightarrow{PR} , \overrightarrow{QR}
 - b. Do these three points form a right triangle?