Warmup #4: Unit Vector

Find a unit vector in the direction of v=<-3,3>.

$$u = \frac{\vec{v}}{\|\vec{v}\|} = \frac{\langle -3, 3 \rangle}{\sqrt{(-3)^2 + (3)^2}} = \frac{\langle -3, 3 \rangle}{3\sqrt{9}} = \left\langle \frac{-3}{3\sqrt{2}}, \frac{3}{3\sqrt{2}} \right\rangle$$

$$= \left\langle \frac{-1}{\sqrt{2}}, \frac{1}{\sqrt{2}} \right\rangle$$

$$\sqrt{9+9}$$

$$\sqrt{18}$$

$$3\sqrt{2}$$

$$\pm \left\langle \frac{-\sqrt{2}}{2}, \frac{\sqrt{2}}{2} \right\rangle$$