

Warmup #4: Unit Vector

Find a unit vector in the direction of $v = \langle -3, 3 \rangle$.

$$\text{unit vector} = \frac{\vec{v}}{\|\vec{v}\|} = \frac{\langle -3, 3 \rangle}{3\sqrt{2}} = \frac{1}{3\sqrt{2}} \langle -3, 3 \rangle$$



$$\sqrt{(-3)^2 + (3)^2}$$

$$= \sqrt{9+9}$$

$$= \sqrt{18}$$

$$= 3\sqrt{2}$$

$$= \left\langle \frac{-3}{3\sqrt{2}}, \frac{3}{3\sqrt{2}} \right\rangle$$

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

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