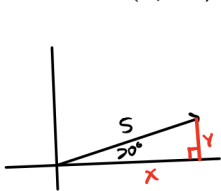


V5 - Polar to Component (Right Angles Trig)

Find the component form given polar form.

1. $\vec{v} = (5, 20^\circ)$



$$\vec{v} = \langle r \cos \theta, r \sin \theta \rangle$$

$$\vec{v} = \langle 4.7, 1.7 \rangle$$

$$\cos(20^\circ) = \frac{x}{5}$$

$$5 \cos(20^\circ) = x$$

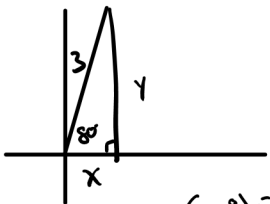
$$4.7 \approx x$$

$$\sin(20^\circ) = \frac{y}{5}$$

$$5 \sin(20^\circ) = y$$

$$1.7 \approx y$$

2. $\vec{u} = (3, 80^\circ)$



$$\vec{u} = \langle r \cos \theta, r \sin \theta \rangle$$

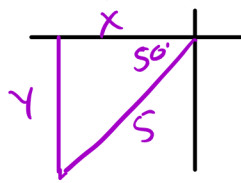
$$\vec{u} = \langle 3 \cos(80^\circ), 3 \sin(80^\circ) \rangle$$

$$\vec{u} = \langle 0.5, 2.95 \rangle$$

$$\sin(80^\circ) = \frac{y}{3}$$

$$\cos(80^\circ) = \frac{x}{3}$$

3. $\vec{w} = (5, 230^\circ)$



$$\vec{w} = \langle r \cos \theta, r \sin \theta \rangle$$

$$= \langle 5 \cos(230^\circ), 5 \sin(230^\circ) \rangle$$

$$\vec{w} = \langle -3.2, -3.8 \rangle$$

$$\cos(50^\circ) = \frac{x}{5}$$

$$\sin(50^\circ) = \frac{y}{5}$$

4. $\vec{s} = (4, 320^\circ)$

$$\vec{s} = \langle r \cos \theta, r \sin \theta \rangle$$

$$\vec{s} = \langle 4 \cos(320^\circ), 4 \sin(320^\circ) \rangle$$

$$\vec{s} = \langle 3.1, -2.6 \rangle$$