Precalculus Worksheet #2 Unit 6 Selected Solutions

Given the magnitude and the direction angle of vector v, write the component form of v.

1. $\|\mathbf{v}\| = 40$; $\theta = 85°$ $\mathbf{v} = \langle 3.49, 39.8 \rangle$

$\mathbf{v}_x = \|\mathbf{v}\| \cos \theta$ $\mathbf{v}_y = \|\mathbf{v}\| \sin \theta$

$\mathbf{v}_x = 40 \cos 85°$ $\mathbf{v}_y = 40 \sin 85°$

Given the component form of v, find its magnitude and direction angle.

3. $\mathbf{v} = \langle 8.2, 3.1 \rangle$ $\|\mathbf{v}\| = 8.77$ $\theta = 20.7°$

$$\| \mathbf{v} \| = \sqrt{8.2^2 + 3.1^2} \qquad \theta = \arctan\left(\frac{3.1}{8.2}\right)$$

$$\| \mathbf{v} \| = \sqrt{76.85}$$