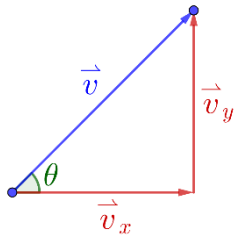
# Precalculus

## 6-04 Writing Vectors in Trigonometric Form

### Direction Angle

- $v_x = \|\vec{v}\| \cos\theta$
- $v_y = \|\vec{v}\| \sin\theta$
- $\vec{v} = \|\vec{v}\|\langle \cos\theta\,, \sin\theta \rangle$
- $\tan\theta = \frac{v_y}{v_x}$




Write the vector in trig form. $\langle -12,\ 5 \rangle$

Write the vector in component form. $10\langle \cos 120°\,, \sin 120° \rangle$

Find the component form of the vector representing velocity of an airplane descending at 100 mph at 45° below the horizontal.

Add the vectors. Write the result in trig form. $4\langle \cos 210°\,, \sin 210° \rangle + 2\langle \cos 30°\,, \sin 30° \rangle$

An airplane is traveling at 724 km/h at 30° E of N. If the wind velocity is 32 km/h from the west, find the resultant speed and direction of the plane.