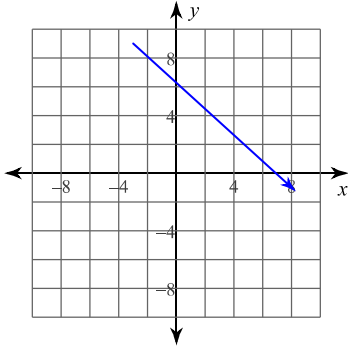


## Two-Dimensional Vector Basics

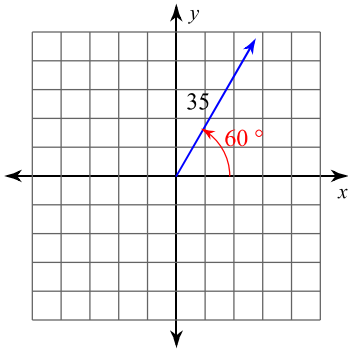
Write each vector in component form.

1)  $\overrightarrow{RS}$  where  $R = (-3, 9)$   $S = (8, -1)$



2)  $\overrightarrow{PQ}$  where  $P = (-10, 5)$   $Q = (-9, -10)$

3)



4)  $|\vec{k}| = 52, 174^\circ$

Draw a diagram to illustrate the horizontal and vertical components of the vector. Then find the magnitude of each component.

5)  $|\vec{t}| = 26, 115^\circ$

6)  $|\vec{a}| = 15, 230^\circ$

Find the magnitude and direction angle for each vector.

7)  $8\vec{i} + 15\vec{j}$

8)  $\vec{r} = \langle -8, -41 \rangle$

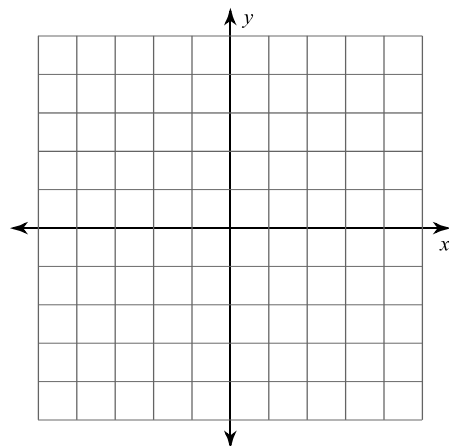
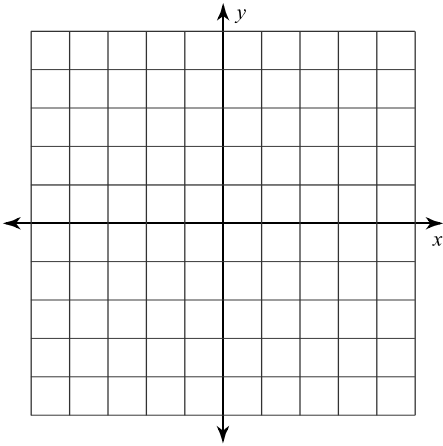
Find the component form, magnitude, and direction angle for the given vector

9)  $\overrightarrow{CD}$  where  $C = (6, -3)$   $D = (-6, -9)$

Sketch a graph of each vector then find the magnitude and direction angle.

10)  $5\vec{i} - 12\vec{j}$

11)  $\overrightarrow{RS}$  where  $R = (-9, -1)$   $S = (-7, -3)$



**Critical thinking question:**

12) Find the component form of  $\vec{v}$  with a magnitude of 50 in the opposite direction of  $\vec{u} = \left\langle 2, -\frac{3}{2} \right\rangle$