Candle Center - Infinite Precalculus
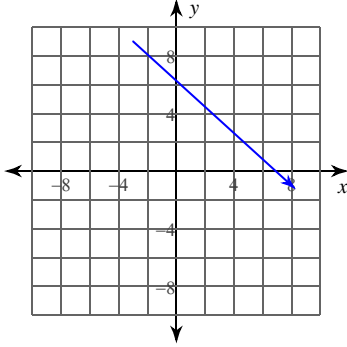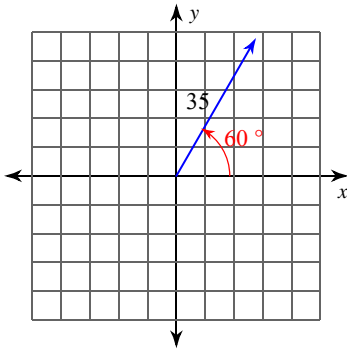
Name_____

Two-Dimensional Vector Basics

Date_____ Period_____

Write each vector in component form.

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

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

3)

4) $\left|\vec{k}\right| = 52,\ 174°$

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

5) $\left|\vec{t}\right| = 26,\ 115°$

6) $\left|\vec{a}\right| = 15,\ 230°$

Find the magnitude and direction angle for each vector.

7) $8\vec{i} + 15\vec{j}$
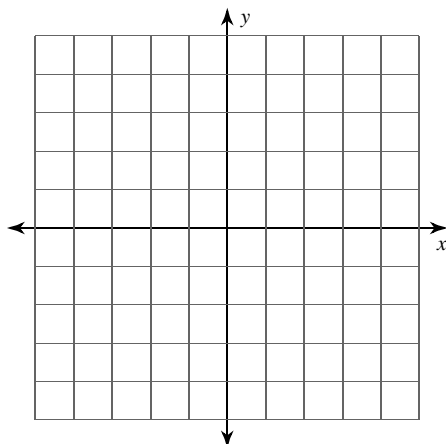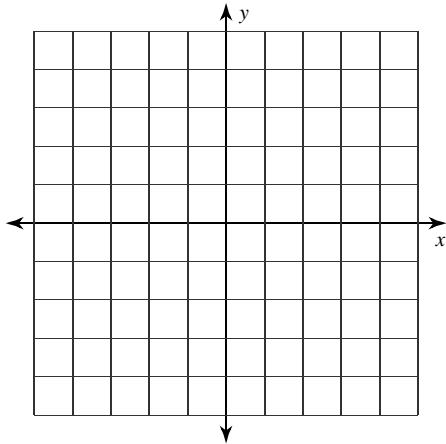
8) $\vec{r} = \langle -8, -41 \rangle$

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

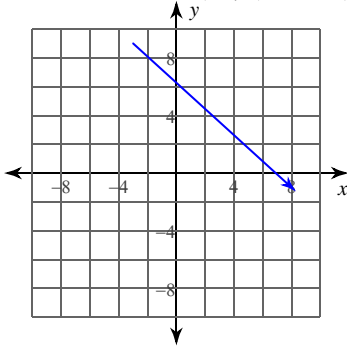11) $\overrightarrow{RS}$ where $R = (-9, -1)$ $S = (-7, -3)$

Critical thinking question:

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

Name_____

Two-Dimensional Vector Basics

Date_____ Period_____

Write each vector in component form.

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

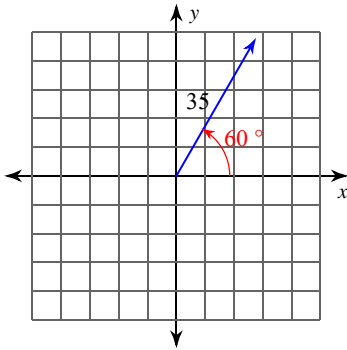$\langle 11, -10 \rangle$

2) $\overrightarrow{PQ}$ where $P = (-10, 5)$ $Q = (-9, -10)$
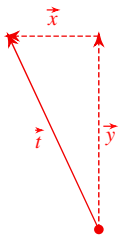
$\langle 1, -15 \rangle$

3)

$\left\langle \dfrac{35}{2}, \dfrac{35\sqrt{3}}{2} \right\rangle$

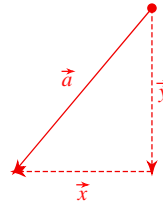4) $\left| \vec{k} \right| = 52, 174°$

$\langle -51.72, 5.44 \rangle$

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

5) $\left| \vec{t} \right| = 26, 115°$

Horizontal: −10.99
Vertical: 23.56

6) $\left| \vec{a} \right| = 15, 230°$

Horizontal: −9.64
Vertical: −11.49

Find the magnitude and direction angle for each vector.

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

  17
  61.93°

8) $\vec{r} = \langle -8, -41 \rangle$
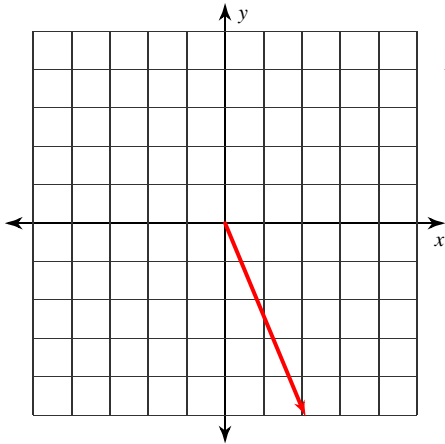
  $\sqrt{1745} \approx 41.773$
  258.96°

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

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

  $\langle -12, -6 \rangle$
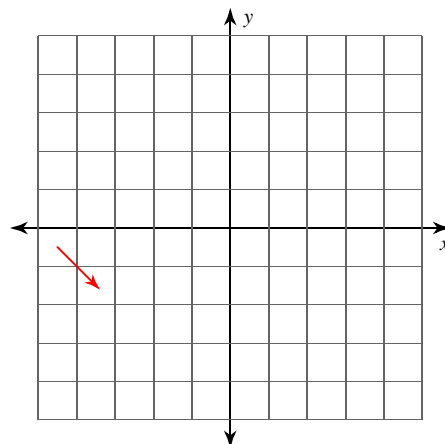 $6\sqrt{5} \approx 13.416$
  206.57°

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

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

  13
  292.62°

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

  $2\sqrt{2} \approx 2.828$
  315°

Critical thinking question:

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

$\vec{v} = \langle -40,\ 30 \rangle$

$\vec{v} = \langle -40,\ 30 \rangle$