# 8.4 REVIEW WORKSHEET

Name:_____

Pre-Calculus

*Sketch the vector indicated.*

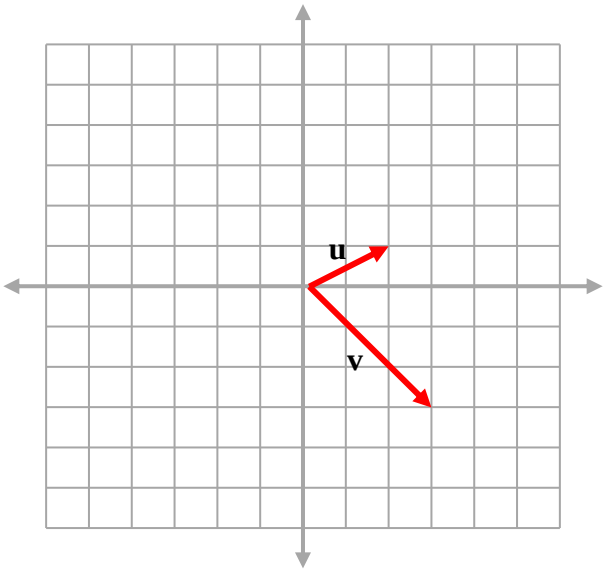
**1.** $2\boldsymbol{u}$

**2.** $-\boldsymbol{v}$

**3.** $-2\boldsymbol{v}$

**4.** $\boldsymbol{v}-\boldsymbol{u}$

**5.** $\boldsymbol{u}+\boldsymbol{v}$




*Express the vector with initial point $P$ and terminal point $Q$ in component form.*

**6.** $P(3,\ 2),\ Q(10,\ 6)$

**7.** $P(-2,\ 4),\ Q(-8,\ -3)$

*Find $-2\boldsymbol{u}$, $\boldsymbol{u}+\boldsymbol{v}$, $2\boldsymbol{v}-\boldsymbol{u}$, $|\mathbf{u}|$, $|\mathbf{v}|$, and $|\mathbf{u}-\mathbf{v}|$ for the given vectors $\boldsymbol{u}$ and $\boldsymbol{v}$.*

**8.** $\mathbf{u}=\langle -1,\ 4\rangle,\ \mathbf{v}=\langle 3,-7\rangle$

**9.** $\mathbf{u}=\mathbf{i}+\mathbf{j},\ \mathbf{v}=\mathbf{i}-\mathbf{j}$

*Find $-2\boldsymbol{u}$, $\boldsymbol{u} + \boldsymbol{v}$, $2\boldsymbol{v} - \boldsymbol{u}$, $|\mathbf{u}|$, $|\mathbf{v}|$, and $|\mathbf{u} - \mathbf{v}|$ for the given vectors $\boldsymbol{u}$ and $\boldsymbol{v}$.*

**10.** $\mathbf{u} = -\mathbf{i} + 2\mathbf{j},\ \mathbf{v} = 2\mathbf{i} - 3\mathbf{j}$

**11.** $\mathbf{u} = \langle -7,\ 2\rangle,\ \mathbf{v} = \langle -3, -1\rangle$

*Find the horizontal and vertical components of the vector with the given length and direction. Write your answer in component form AND in terms of $\boldsymbol{i}$ and $\boldsymbol{j}$.*

**12.** $|\mathbf{v}| = 5,\ \theta = \frac{2\pi}{3}$

**13.** $|\mathbf{v}| = \sqrt{3},\ \theta = 240°$

**14.** $|\mathbf{v}| = 6,\ \theta = 225°$

**15.** $|\mathbf{v}| = 4,\ \theta = \frac{\pi}{2}$

*Find the magnitude and direction of the vector. Write your answer in radians.*

**16.** $\langle \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2} \rangle$

**17.** $\mathbf{v} = 2\mathbf{i} + 2\mathbf{j}$

**18.** $\mathbf{u} = -\mathbf{i} - \sqrt{3}\mathbf{j}$

**19.** $\langle -3\sqrt{3},\ 3\rangle$