

Find each dot product. Then state whether the vectors are perpendicular. Write *yes* or *no*.

1. $\langle 3, 5 \rangle \bullet \langle -15, 9 \rangle$


2. $\langle 7, 2 \rangle \bullet \langle 3, 5 \rangle$

3. $\langle 3, 9 \rangle \bullet \langle -3, 1 \rangle$

4. $\langle 8, 6 \rangle \bullet \langle -3, 4 \rangle$

5. $\langle a, b \rangle \bullet \langle x, y \rangle$

6. $\langle 2, x \rangle \bullet \langle -x, 2 \rangle$

 7. If $\vec{v} = \langle 1, 2 \rangle$, $\vec{w} = \langle -1, 2 \rangle$, and $\vec{u} = \langle 5, 12 \rangle$, for what scalar k will the vector $k\vec{v} + \vec{w}$ be perpendicular to \vec{u} ?

Review

8. Find the magnitude and the components of vector \overline{AB} with $A(3, -7)$ and $B(-1, 3)$.

9. If $\vec{v} = \langle -2, 1 \rangle$ and $\vec{w} = \langle 3, 5 \rangle$, find $\vec{u} = 4\vec{v} - 3\vec{w}$.

10. Find the magnitude of a vector from the origin to the given point.

a) $(3, 9)$ Magnitude _____

b) $(-1, 4)$ Magnitude _____

c) $(8, -3)$ Magnitude _____

11. For each pair of points A and B , find an ordered pair that represents \overline{AB} or \overline{BA} . Then find the magnitude of the vector.

a) $A(-3, 5)$ and $B(2, -3)$ \overline{AB} _____ magnitude _____

b) $A(-9, -8)$ and $B(-1, 0)$ \overline{BA} _____ magnitude _____

c) $A(-4, 8)$ and $B(10, -2)$ \overline{BA} _____ magnitude _____

12. Find an ordered pair to represent \vec{u} in each equation if $\vec{v} = \langle 2, 7 \rangle$ and $\vec{w} = \langle -3, -6 \rangle$.

a) $\vec{u} = \vec{v} - 2\vec{w}$

b) $\vec{u} = 4\vec{v} - 3\vec{w}$

c) $\vec{u} = 2\vec{w} - 5\vec{v}$