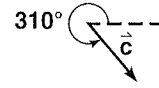
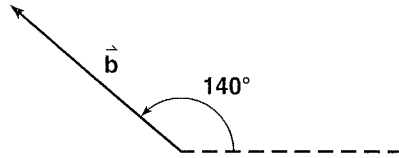
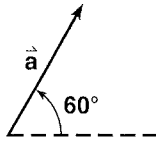


Practice Worksheet

Geometric Vectors

Use a metric ruler and a protractor to find each sum or difference. Then, find the magnitude and ~~amplitude~~ *angle* of each resultant.



1. $\vec{a} + \vec{b}$

2. $\vec{b} - \vec{c}$

3. $2\vec{a} + \vec{b}$

4. $\vec{b} + 3\vec{c}$

Find the magnitude of the vertical and horizontal components of each vector shown for Exercises 1-4.

5. \vec{a}

6. \vec{b}

7. \vec{c}

Practice Worksheet**Algebraic Vectors**

Find the ordered pair that represents the vector from A to B. Then find the magnitude of \overline{AB} .

1. $A(2, 4), B(-1, 3)$

2. $A(4, -2), B(5, -5)$

3. $A(-3, -6), B(8, -1)$

Find the sum or difference of the given vectors algebraically. Express the result as an ordered pair.

4. $2\vec{i} + 6\vec{j}$

5. $4\vec{i} - 5\vec{j}$

Find an ordered pair to represent \vec{u} in each equation if $\vec{v} = (2, -1)$ and $\vec{w} = (-3, 5)$.

6. $\vec{u} = \vec{v} + \vec{w}$

7. $\vec{u} = \vec{v} - \vec{w}$

8. $\vec{u} = 3\vec{v}$

9. $\vec{u} = \vec{w} - 2\vec{v}$

10. $\vec{u} = 2\vec{v} + 3\vec{w}$

11. $\vec{u} = 5\vec{w} - 2\vec{v}$

Practice Worksheet

Vectors in Three-Dimensional Space

Locate points with the given coordinates. Then find the magnitude of a vector from the origin to each point.

1. $(4, 7, 5)$

2. $(3, -2, 6)$

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

3. $A(2, 1, 3), B(-4, 5, 7)$

4. $A(4, 0, 6), B(7, 1, -3)$

5. $A(-4, 5, 8), B(7, 2, -9)$

6. $A(6, 8, -5), B(7, -3, 12)$

Write each vector as the sum of unit vectors.

7. $(8, -9, 2)$

8. $(7, 6, -5)$

Find an ordered triple to represent \vec{u} in each equation if $\vec{v} = (2, -4, 5)$ and $\vec{w} = (6, -8, 9)$.

9. $\vec{u} = \vec{v} + \vec{w}$

10. $\vec{u} = \vec{v} - \vec{w}$

11. $\vec{u} = 4\vec{v} + 3\vec{w}$

12. $\vec{u} = 5\vec{v} - 2\vec{w}$

Practice Worksheet***Perpendicular Vectors***

Find each inner product and state whether the vectors are perpendicular. Write yes or no.

1. $(3, 6) \cdot (-4, 2)$

2. $(-1, 4) \cdot (3, -2)$

3. $(2, 0) \cdot (-1, -1)$

4. $(7, -3) \cdot (-2, 4)$

5. $(-3, 0) \cdot (4, -3)$

6. $(7, -4) \cdot (-5, -8)$

7. $(-2, 0, 1) \cdot (3, 2, -3)$

8. $(-4, -1, 1) \cdot (1, -3, 4)$

9. $(0, 0, 1) \cdot (1, -2, 0)$

Find each cross product. Then verify that the resulting vector is perpendicular to the given vectors.

10. $(1, 3, 4) \times (-1, 0, -1)$

11. $(3, 1, -6) \times (-2, 4, 3)$

12. $(3, 1, 2) \times (2, -3, 1)$

13. $(4, -1, 0) \times (5, -3, -1)$

14. $(-6, 1, 3) \times (-2, -2, 1)$

15. $(0, 0, 6) \times (3, -2, -4)$