

## 8-2

NAME \_\_\_\_\_ DATE \_\_\_\_\_ PERIOD \_\_\_\_\_

## Practice

## Algebraic Vectors

Write the ordered pair that represents  $\overline{AB}$ . Then find the magnitude of  $\overline{AB}$ .

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

$\langle -3, -1 \rangle; \sqrt{10}$

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

$\langle 1, -3 \rangle; \sqrt{10}$

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

$\langle 11, 5 \rangle; \sqrt{146}$

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

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

$\langle 6, -3 \rangle$

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

$\langle -7, 7 \rangle$

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

$\langle -1, 11 \rangle$

7.  $\vec{u} = 5\vec{w} - 3\vec{v}$

$\langle -21, 28 \rangle$

Find the magnitude of each vector, and write each vector as the sum of unit vectors.

8.  $\langle 2, 6 \rangle$

$2\sqrt{10}; 2\vec{i} + 6\vec{j}$

9.  $\langle 4, -5 \rangle$

$\sqrt{41}; 4\vec{i} - 5\vec{j}$

10. **Gardening** Nancy and Harry are lifting a stone statue and moving it to a new location in their garden. Nancy is pushing the statue with a force of 120 newtons (N) at a  $60^\circ$  angle with the horizontal while Harry is pulling the statue with a force of 180 newtons at a  $40^\circ$  angle with the horizontal. What is the magnitude of the combined force they exert on the statue?

$295.62 \text{ N}$