8-2

Practice

Algebraic Vectors

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

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

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

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

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

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

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

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

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

8. $\langle 2, 6 \rangle$

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

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° angle with the horizontal while Harry is pulling the statue with a force of 180 newtons at a 40° angle with the horizontal. What is the magnitude of the combined force they exert on the statue?