8.2-8.4 Extra Practice A40

Lesson 8-2 *(Pages 493–499)*

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

1. $A(3, 6), B(4, 1)$ $\langle 1, -5\rangle; \sqrt{26}$
2. $A(-1, 3), B(-2, 2)$ $\langle -1, -1\rangle; \sqrt{2}$
3. $A(0, -4), B(-1, -8)$ $\langle -1, -4\rangle; \sqrt{17}$
4. $A(1, 10), B(3, -9)$ $\langle 2, -19\rangle; \sqrt{365}$

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

7. $\langle 5, 6\rangle$ $\sqrt{61}; 5\vec{i} + 6\vec{j}$
8. $\langle -2, 4\rangle$ $2\sqrt{5}; -2\vec{i} + 4\vec{j}$
9. $\langle -10, -5\rangle$ $5\sqrt{5}; -10\vec{i} - 5\vec{j}$

Lesson 8-3 *(Pages 500–504)*

Find an ordered triple to represent $\vec{p}$ in each equation if $\vec{q} = \langle 1, 2, -1\rangle$, $\vec{r} = \langle -2, 2, 4\rangle$, and $\vec{s} = \langle -4, -3, 0\rangle$.

1. $\vec{p} = 2\vec{q} + 3\vec{s}$ $\langle -10, -5, -2\rangle$
2. $\vec{p} = \vec{q} - \frac{1}{2}\vec{r} + \vec{s}$ $\langle -2, -2, -3\rangle$

Lesson 8-4 *(Pages 505–511)*

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

1. $\langle 3, 4\rangle \cdot \langle 2, 5\rangle$ 26; no
2. $\langle -3, 2\rangle \cdot \langle 4, 6\rangle$ 0; yes
3. $\langle -5, 3\rangle \cdot \langle 2, -3\rangle$ −19; no
4. $\langle 8, 6\rangle \cdot \langle -2, -3\rangle$ −34; no
5. $\langle 3, 4, 0\rangle \cdot \langle 4, -3, 6\rangle$ 0; yes
6. $\langle 4, 5, 1\rangle \cdot \langle -1, -2, 3\rangle$ −11; no

Find each cross product. Then verify that the resulting vector is perpendicular to the given vectors. 7–10. See margin for verification.

7. $\langle 1, 0, 3\rangle \times \langle 1, 1, 2\rangle$ $\langle -3, 1, 1\rangle$
8. $\langle 3, 0, 4\rangle \times \langle -1, 5, 2\rangle$ $\langle -20, -10, 15\rangle$