

Name _____

10-7 Lesson Master

Questions on SPUR Objectives

See Student Edition pages 673–677 for objectives.

SKILLS Objectives C and D

In 1–4, find the dot product of the two vectors.

1. $\langle -1, 4 \rangle$ and $\langle 7, -2 \rangle$ _____
2. $\langle 3, 4 \rangle$ and $\langle 9, 0 \rangle$ _____
3. $\langle 0.4, 0.8 \rangle$ and $\langle 4.5, 1 \rangle$ _____
4. $\langle \frac{1}{2}, -9 \rangle$ and $\langle 6, -\frac{2}{3} \rangle$ _____

In 5–7, find the measure of the angle between the vectors given in the indicated question.

5. Question 1 _____
6. Question 2 _____
7. Question 3 _____

PROPERTIES Objectives E and F

8. Let \vec{u} and \vec{v} be any two-dimensional vectors and k be any nonzero real number. Prove that $k\vec{u} \cdot k\vec{v} = k^2(\vec{u} \cdot \vec{v})$.

9. Tell whether each pair of vectors are orthogonal.

- a. $\langle -3, -7 \rangle$ and $\langle 6, -2 \rangle$ _____
- b. $\langle 12, 3 \rangle$ and $\langle -1, 4 \rangle$ _____

10. Let $\vec{w} = \langle 4, 9 \rangle$ and $\vec{s} = \langle -2, y \rangle$. Find y so that \vec{w} and \vec{s} are orthogonal. _____

11. Find all two-dimensional vectors \vec{v} that are orthogonal to $\langle 6, 4 \rangle$ and have magnitude 5.

REPRESENTATIONS Objective N

12. Let $P = (2, 3)$ and $\vec{s} = \langle -5, 1 \rangle$.

- a. Find a vector equation for the line through P that is orthogonal to \vec{s} . _____

- b. Find parametric equations for the same line. _____

- c. Sketch a graph of P , \vec{s} , and the line on the axes at the right.

