Kuta Software - Infinite Precalculus Name_____

Three Dimensional Vector Basics

Date_____ Period____

Write each vector in component form.

1) $\overrightarrow{CD}$ where $C = (2, -3, 3)$ $D = (-7, 1, 2)$

2) $\overrightarrow{AB}$ where $A = (0, -2, -1)$ $B = (-2, -3, 7)$

Write each vector as a linear combination.

3) $\overrightarrow{RS}$ where $R = (-4, 9, -9)$ $S = (7, 9, 8)$

4) $\overrightarrow{CD}$ where $C = (1, -8, -7)$ $D = (1, 1, 0)$

Find the magnitude of each vector.

5) $\vec{v} = 2\vec{i} + 7\vec{j} + 5\vec{k}$

6) $\overrightarrow{RS}$ where $R = (6, 5, -8)$ $S = (1, 3, -9)$

7) $\vec{u} = \langle -4, -6, 9 \rangle$

8) $\vec{u} = -7\vec{i} - \vec{j} - \vec{k}$

Critical thinking questions:

9) Find the head and tail points for $\overrightarrow{AB} = \langle 8, -1, 2 \rangle$ that starts in octant VI and ends in octant V.

10) What are the possible integer x, y, and z components of a three-dimensional vector with a magnitude of 6?

 Name_____

Three Dimensional Vector Basics

Date_____ Period____

Write each vector in component form.

1) $\overrightarrow{CD}$ where $C = (2, -3, 3)$ $D = (-7, 1, 2)$

$\langle -9, 4, -1 \rangle$

2) $\overrightarrow{AB}$ where $A = (0, -2, -1)$ $B = (-2, -3, 7)$

$\langle -2, -1, 8 \rangle$

Write each vector as a linear combination.

3) $\overrightarrow{RS}$ where $R = (-4, 9, -9)$ $S = (7, 9, 8)$

$11\vec{i} + 17\vec{k}$

4) $\overrightarrow{CD}$ where $C = (1, -8, -7)$ $D = (1, 1, 0)$

$9\vec{j} + 7\vec{k}$

Find the magnitude of each vector.

5) $\vec{v} = 2\vec{i} + 7\vec{j} + 5\vec{k}$

$\sqrt{78} \approx 8.832$

6) $\overrightarrow{RS}$ where $R = (6, 5, -8)$ $S = (1, 3, -9)$

$\sqrt{30} \approx 5.477$

7) $\vec{u} = \langle -4, -6, 9 \rangle$

$\sqrt{133} \approx 11.533$

8) $\vec{u} = -7\vec{i} - \vec{j} - \vec{k}$

$\sqrt{51} \approx 7.141$

Critical thinking questions:

9) Find the head and tail points for $\overrightarrow{AB} = \langle 8, -1, 2 \rangle$ that starts in octant VI and ends in octant V.

Multiple Answers:
A $= (-7, 6, -4)$ B $= (1, 5, -2)$

10) What are the possible integer x, y, and z components of a three-dimensional vector with a magnitude of 6?

$x = \pm 4, y = \pm 4, z = \pm 2$
$x = \pm 4, y = \pm 2, z = \pm 4$
$x = \pm 2, y = \pm 4, z = \pm 4$
$x = \pm 6, y = 0, z = 0$
$x = 0, y = \pm 6, z = 0$
$x = 0, y = 0, z = \pm 6$