

Vectors in 3D

8.3

4/3/16

Lesson 17

Warm-up

Write the ordered pair that represents the vector.

Then find the magnitude.

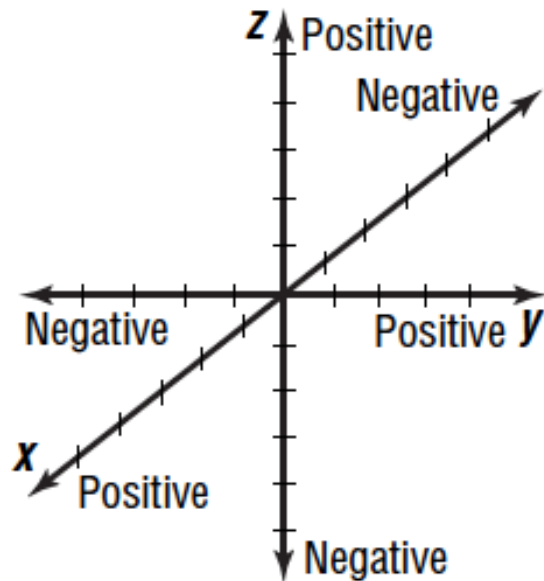
Then write it as the sum of vector units.

Then sketch a graph.

1) $X(-1,2)$ to $Y(0,3)$

2) Simplify $\sqrt{904}$

3) *Simplify* $\sqrt{72}$



I do:

Write the ordered pair that represents the vector $X(-3,5,2)$ to $Y(4,-2,1)$.

Then find the magnitude.

Find ordered pair using formula $\langle x_2 - x_1, y_2 - y_1, z_2 - z_1 \rangle$	
Find magnitude using distance formula $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$	

You do with your partner:
 Write the ordered pair that represents
 the vector X(5,0,1) to Y(7,6, -2).
 Then find the magnitude.

Find ordered pair using formula	
Find magnitude using distance formula	

Pg.503 #15-20

I do:

$$\vec{m} = \langle 5, -7, 3 \rangle$$

$$\vec{n} = \langle 0, 4, 1 \rangle$$

$$\vec{p} = \langle -1, 3, 0 \rangle$$

Solve for $\vec{p} - 3\vec{n}$

Do Scalar multiplication first	$3\vec{n} = 3\langle 0, 4, 1 \rangle = \langle 0, 12, 3 \rangle$
Simplify	$\langle -1, 3, 0 \rangle - \langle 0, 12, 3 \rangle$ $\langle -1 - 0, 3 - 12, 0 - 3 \rangle$ $\langle -1, -9, -3 \rangle$

We do:

$$\vec{m} = \langle 5, -7, 3 \rangle$$

$$\vec{n} = \langle 0, 4, 1 \rangle$$

$$\vec{p} = \langle -1, 3, 0 \rangle$$

Solve for $-2\vec{m} - \vec{p} + 3\vec{n}$

Do Scalar multiplication first	
Simplify	

You do with your partner:

$$\vec{m} = \langle 5, -7, 3 \rangle$$

$$\vec{n} = \langle 0, 4, 1 \rangle$$

$$\vec{p} = \langle -1, 3, 0 \rangle$$

1) Solve for $-3\vec{m} + 3\vec{n}$

Work on Pg 503 # 22-27

I do

Write the vector as the sum of unit vectors.

1) S(0,2,3) T(-1, 5,7)

$$\vec{ST} = \langle -1, 3, 4 \rangle$$

Break up the vector	$\langle -1, 3, 4 \rangle = \langle -1, 0, 0 \rangle + \langle 0, 3, 0 \rangle + \langle 0, 0, 4 \rangle$
Separate into unit vectors	$-1\langle 1, 0 \rangle + 3\langle 0, 1 \rangle + 4\langle 0, 0, 1 \rangle$
Replace with $\vec{i}, \vec{j}, \vec{k}$ vectors	$-1\vec{i} + 3\vec{j} + 4\vec{k}$

We Try

Then write the vector as the sum of unit vectors.

S(1,3,0) T(3,-1,2)

$\vec{ST} =$

Break up the vector	
Separate into unit vectors	
Replace with $\vec{i}, \vec{j}, \vec{k}$ vectors	

You Try:

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

1) S(0,3,0) T(1,-1,-1)

2) S(1,-1,0) T(0,2,-1)

Exit Slip

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

1) $S(0,3,0)$ $T(1,-1,-1)$

Given :

$$\vec{m} = \langle 1, -3, 3 \rangle$$

$$\vec{n} = \langle 0, 4, 1 \rangle$$

$$\vec{p} = \langle -1, 3, 0 \rangle$$

2) Solve for $-2\vec{m} + \vec{n}$