Trig 8.3 $\langle 3, -4 \rangle$

$3\vec{i} - 4\vec{j}$

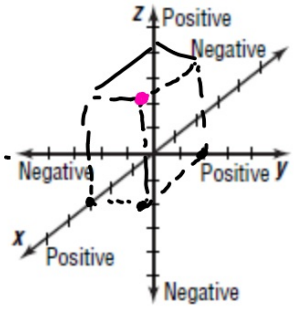
Add and subtract vectors in 3-D space

Find the magnitude of vectors in 3-D

Quiz 8.1-8.2

vector

magnitude $\langle 3, 2, 5 \rangle$



Hard to draw :(
model with floor graphs...

x-axis

y-axis

z-axis

ordered pair

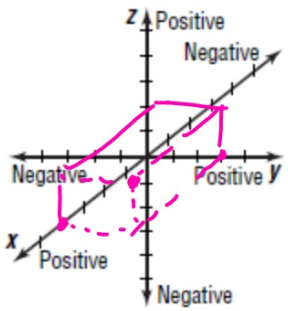
ordered triple

component form

unit vectors i, j, k

Floor graph Unit = feet (for now)

1 **Locate the point at (·4, 3, 2).**



We w ill do the math, not spend a lot of time trying to sketch. May interpret draw ings made by others (book, WS).
Model this one (floor graph) units are feet

$\langle x, y, z \rangle$ $\overrightarrow{xy}$

2 **Write the ordered triple that represents the vector from $X(5, 3, 2)$ to $Y(4, 5, 6)$.**

What are changes to x-coord? $\langle -1, 2, 4 \rangle$

y-coord? $-1\vec{i} + 2\vec{j} + 4\vec{k}$

z-coord? $-\vec{i} + 2\vec{j} + 4\vec{k}$

$\vec{xy}$

2 Write the ordered triple that represents the vector from $X(5, -3, 2)$ to $Y(4, -5, 6)$.

$\langle -1, -2, 4 \rangle$

$-\vec{i} - 2\vec{j} + 4\vec{k}$

4 Find an ordered triple that represents $3\vec{p} + 2\vec{q}$ if $\vec{p} = \langle 3, 0, 4 \rangle$ and $\vec{q} = \langle 2, 1, -1 \rangle$.

$3\langle 3, 0, 4 \rangle + -2\langle 2, 1, -1 \rangle$

$\langle 9, 0, 12 \rangle + \langle -4, -2, 2 \rangle$

$\langle 5, -2, 14 \rangle$

<vector>

Write the ordered triple that represents $\overline{RS}$. Then find the magnitude of $\overline{RS}$.

5. $R(-2, 5, 8), S(3, 9, -3)$

6. $R(3, 7, -1), S(10, -4, 0)$

$\langle 5, 4, -11 \rangle$

$|\vec{RS}| = \sqrt{162} \approx 12.7$

What is initial point? Terminal point?

$\langle 5, 4, -11 \rangle$

$5^2 + 4^2 + (-11)^2 =$

$25 + 16 + 121 =$

162

i j k

How far is it? Which direction?

5 **Write $\overrightarrow{AB}$ as the sum of unit vectors for $A(5, 10, -3)$ and $B(-1, 4, -2)$.**

$-6\vec{i} - 6\vec{j} + \vec{k}$

from (where)...to (where)
final - initial...just like odometer on your car

Write $\overrightarrow{EF}$ as the sum of unit vectors.

9. $E(-5, -2, 4), F(6, -6, 6)$

10. $E(-12, 15, -9), F(-12, 17, -22)$

These are already vectors. (How do we know?)

Find an ordered triple to represent $\vec{a}$ in each equation if $\vec{f} = \langle 1, -3, -8 \rangle$ and $\vec{g} = \langle 3, 9, -1 \rangle$.

7. $\vec{a} = 3\vec{f} + \vec{g}$

8. $\vec{a} = 2\vec{g} + 5\vec{f}$

13-35 에서