Name: Key

Bellwork

Write the vector between the points in component form. Find the magnitude of the vector. Then draw the vector in a different location on the coordinate grid.

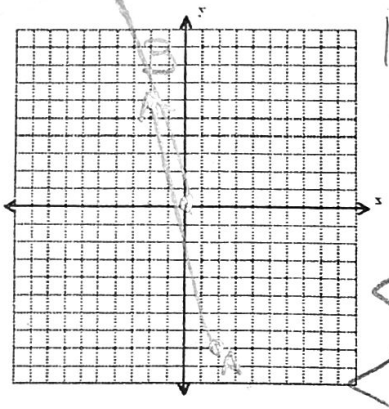
1) (3, −8) and (−2, 6)

A B

$\overrightarrow{AB} = \langle -2-3, 6+8 \rangle$

$= \langle -5, 14 \rangle$ direction

$-5i + 14j$



$\|\overline{AB}\| = \sqrt{(-5)^2 + 14^2}$

$= \sqrt{221}$

≈ 14.8

Unit Vector

$\left\langle \frac{-5}{\sqrt{221}}, \frac{14}{\sqrt{221}} \right\rangle$

$\left\langle \frac{-5\sqrt{221}}{221}, \frac{14\sqrt{221}}{221} \right\rangle$

2) (5, 0) and (−2, −6)

A B

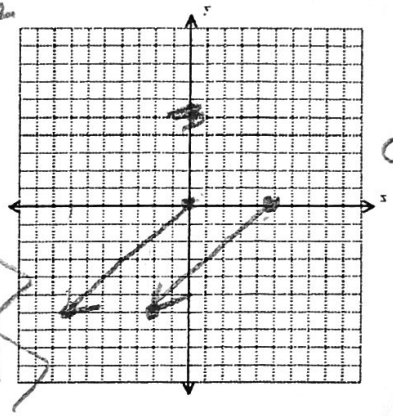
$\langle -7, -6 \rangle$ or $-7i - 6j$

$\sqrt{(-7)^2 + (-6)^2}$

$\sqrt{85}$

unit vector

$\left\langle \frac{-7}{\sqrt{85}}, \frac{-6}{\sqrt{85}} \right\rangle$



Use the given information to find the following resultant vectors algebraically.

$\vec{v} = \langle -1, 2 \rangle$ $\quad \vec{u} = \langle 6, -5 \rangle$ $\quad R = (2, -7)$ $\quad S = (-3, 1)$ $\quad T = (-3, 3)$

3) $\vec{u} + \vec{v}$ $\langle 5, -3 \rangle$

4) $\vec{u} - \vec{v}$ $\langle 6, -5 \rangle - \langle -1, 2 \rangle$

$\langle 6, -5 \rangle + \langle 1, -2 \rangle$

$\langle 7, -7 \rangle$

5) $\vec{u} + \overrightarrow{RS}$ $\langle 6, -5 \rangle + \langle -5, 8 \rangle$

$\langle 1, 3 \rangle$

6) $\overrightarrow{RS} - \overrightarrow{ST}$

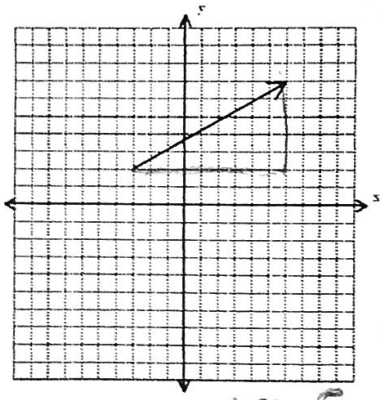
$\langle -5, 8 \rangle - \langle 0, 2 \rangle$

$\langle -5, 8 \rangle + \langle 0, -2 \rangle$

$\langle -5, 6 \rangle$

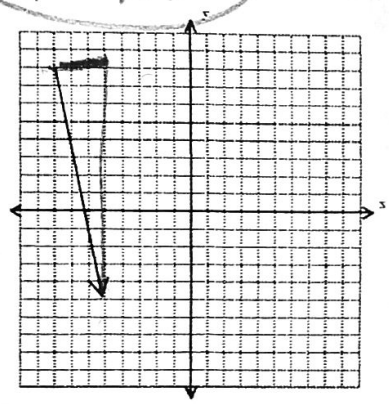
Find the direction and magnitude for each of the following.

7)



Direction $\langle 8, 5 \rangle$

8)



$\langle 3, -13 \rangle$