

STATION 1:

Point A: (3,6) Point B: (5, -12) Point C is (0, 0)

1) Find the midpoint of \overline{AB}

$$\left(\frac{3+5}{2}, \frac{6-12}{2} \right) \Rightarrow \boxed{(4, -3)}$$

$(3, 6)$
 $(5, -12)$

2) Find the slope of \overline{AB}

$$m = \frac{6+12}{3-5} = \frac{18}{-2} = \boxed{-9}$$

3) Find the slope of the line perpendicular to \overline{CB}

$$m_{CB} = \frac{0+12}{0-5} = \frac{12}{-5}$$

$$\perp m = \frac{5}{12}$$

$(0, 0)$
 $(5, -12)$

4) Are A, B, and C Collinear?

$$m_{AB} = -9$$

$$m_{BC} = -\frac{12}{5}$$

$\boxed{\text{No!}}$

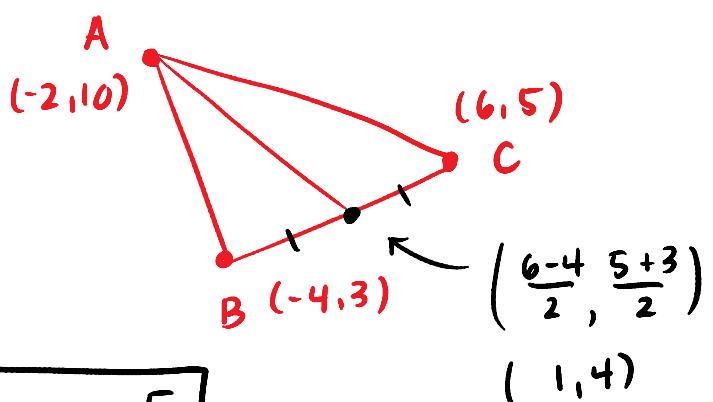
STATION 2:

Find the slope of the median and altitude from A if a triangle is formed by connecting points

A (-2, 10) B (-4, 3) C (6, 5)

$$m_{(\text{med})} = \frac{10-4}{-2-1} = \frac{6}{-3} = \boxed{-2}$$

$$\begin{pmatrix} -2, 10 \\ -4, 3 \end{pmatrix}$$



$$m_{BC} = \frac{5-3}{6+4} = \frac{2}{10} = \frac{1}{5} \quad \therefore \boxed{m_{(\text{alt})} = -5}$$

$(-4, 3)$
 $(6, 5)$

STATION 3:

Are (-2,3), (4,6), and (8,8) collinear??? Explain!

$$m = \frac{6-3}{4+2} = \frac{3}{6} = \boxed{\frac{1}{2}}$$

(-2,3)
(4,6)

$$m = \frac{8-6}{8-4} = \frac{2}{4} = \boxed{\frac{1}{2}}$$

(4,6)
(8,8)

SAME SLOPE

STATION 4:

(9, 2) and (k, 7) are on a line with slope $\frac{-3}{5}$. Find k.

$$\frac{7-2}{k-9} = -\frac{3}{5}$$

(9,2)
(k,7)

$$\frac{5}{k-9} = -\frac{3}{5}$$

$$-3(k-9) = 25$$

$$-3k + 27 = 25$$

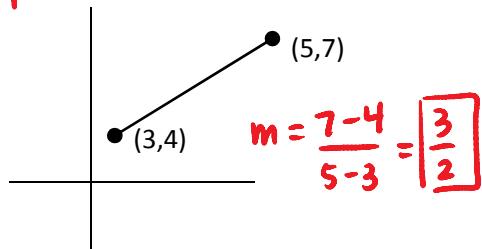
$$-3k = -2$$

$$\boxed{k = \frac{2}{3}}$$

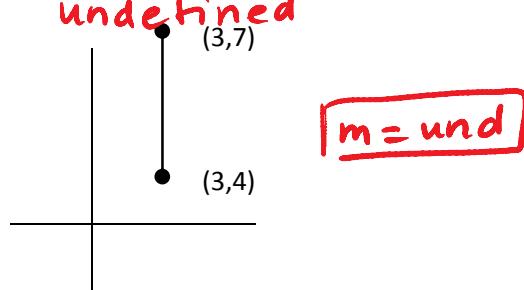
STATION 5:

First determine if the slope is positive, negative, zero, or undefined. Then determine the value of the slope.

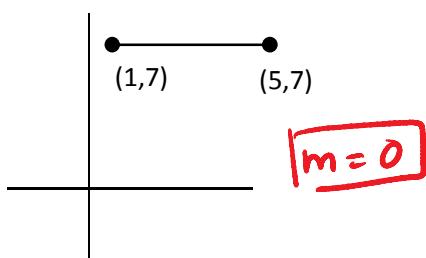
positive



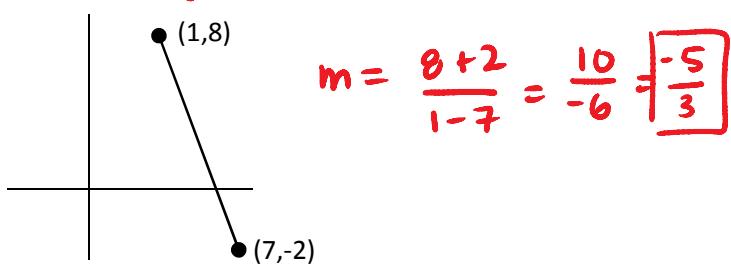
undefined



zero



negative



STATION 6:

Given 2 points (1, 5) and (-4, 2), Write the equation of the line in: $m = \frac{5-2}{1+4} = \frac{3}{5}$

1. Point Slope Form

$$\boxed{y-2 = \frac{3}{5}(x+4)} \text{ or } \boxed{y-5 = \frac{3}{5}(x-1)}$$

2. Slope Intercept Form

$$y-2 = \frac{3}{5}x + \frac{12}{5}$$

$$\boxed{y = \frac{3}{5}x + \frac{22}{5}}$$

3. Standard Form

$$\boxed{-\frac{3}{5}x + y = \frac{22}{5}}$$

or

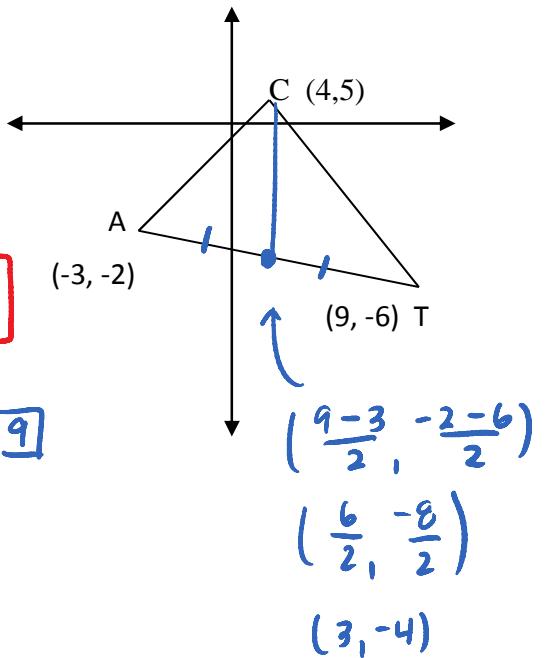
$$\boxed{-3x + 5y = 22}$$

STATION 7

Use the diagram at the right for problems

1. What is the slope of \overline{AT} ? $m = -\frac{1}{3}$
2. What is the slope of the altitude to \overline{AT} ? 3
3. What is the slope of the line through C parallel to \overline{AT} ? $-\frac{1}{3}$
4. What is the slope of the median to \overline{AT} ?

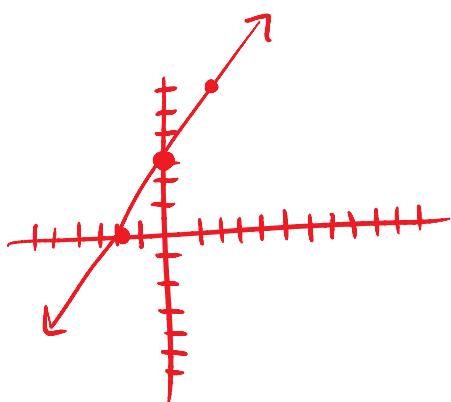
$$\hookrightarrow m = \frac{5+4}{4-3} = \frac{9}{1} = 9$$



STATION 8:

Graph the Following:

$$\begin{aligned} a. \quad 4y - 6x &= 12 \\ +6x \quad +6x &\\ \hline 4y &= \frac{6x}{4} + \frac{12}{4} \\ y &= \frac{3}{2}x + 3 \end{aligned}$$



$$b. \quad y - 5 = \frac{-3}{4}(x + 5)$$

$$m = -\frac{3}{4} \quad pt: (-5, 5)$$

