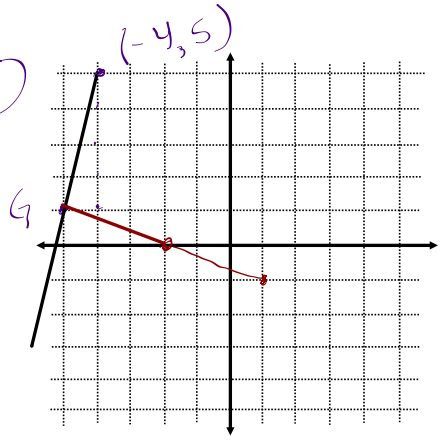
28, 23,

(23)



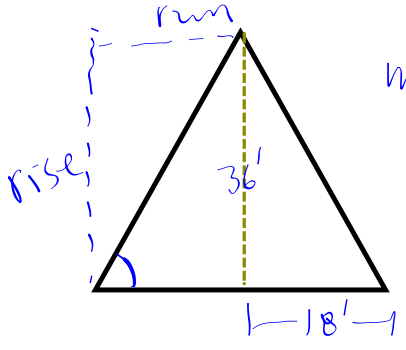
a) $m = \frac{4}{1}$ ⇒ (-5, 1), (-4, 5), (-3, 9), (-2, 13); $\Delta y = 4$, $\Delta x = 1$

c) $m = -\frac{1}{3} = \frac{\Delta y}{\Delta x}$: (-5, 1), (-2, 0); $\Delta y = -1$

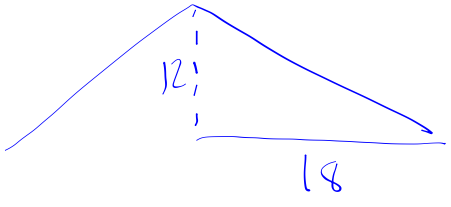
(1, -1)

(4, -2)

28.



$m = \frac{\text{rise}}{\text{run}} = \frac{36}{18} = \frac{2}{1}$



$m = \frac{12}{18} = \frac{2}{3}$

6.2 Perpendiclar and Parallel Lines

* Parallel lines have the same slope

ex. Determine which line segments are parallel
- EF passes through E(-4, -3) and F(0, 3)
- PQ passes through P(-3, -5) and Q(2, 3)
- RS passes through R(0, -3) and S(4, 3)

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$m_{EF} = \frac{3-(-3)}{0-(-4)} = \frac{6}{4} = \frac{3}{2}$

$m_{PQ} = \frac{3-(-5)}{2-(-3)} = \frac{8}{5}$

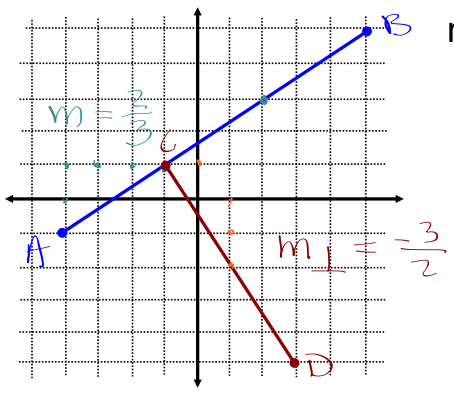
$m_{RS} = \frac{3-(-3)}{4-0} = \frac{6}{4} = \frac{3}{2}$

∴ $\overline{EF}$ and $\overline{RS}$ are parallel

* What is the relationship between two perpendicular lines? Draw two sets of perpendicular lines... what do you notice?

meet @ 90°

ex.



$m_{AB} = \frac{2}{3}$

$m_{CD} = -\frac{3}{2}$

* Perpendicular lines have slopes that are negative reciprocals

ex. m = -3/1

$m_\perp = \frac{1}{3}$

ex// $m = \frac{1}{5}$

$m_\perp = -\left(\frac{5}{1}\right) = -5$

ex// $m = -\frac{3}{7}$

$m_\perp = -\left(\frac{7}{-3}\right) = \frac{7}{3}$

ex. Determine the slope of a line that is perpendicular to a line that passes through A(-2, 3) and B(1, -2), the equation for slope is

$$m_{AB} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{-2 - 3}{1 - (-2)}$$

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

$\therefore$ $m_{\perp} = \frac{3}{5}$

$\perp$ means perpendicular

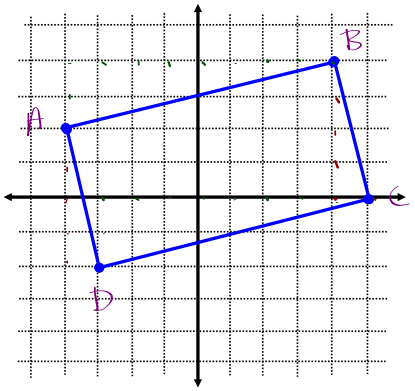
ex. Is ABCD a parallelogram? Justify your answer.

$m_{AB} = \frac{2}{8} = \frac{1}{4}$

$m_{DC} = \frac{2}{8} = \frac{1}{4}$

$\therefore m_{AB} \parallel m_{DC}$

$\parallel$ means parallel



$m_{AD} = \frac{-4}{1} = -4$

$m_{BC} = \frac{-4}{1} = -4$

$\therefore m_{AD} \parallel m_{BC}$

$\therefore$ ABCD is a ||ogram

Homefun: Pg. 349 # 3ab, 4ab, 5, 8-16, 19, 22