

Name, Date, Hour: Key 11/1 Learning Target: 3.4: Find + use slopes of lines Homework: Day 7 pg 175 #2-6, 8-22 even

BOX 1

Slope	$\text{rise} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$
Positive Slope	rises from left to right
Negative Slope	falls from left to right
Zero Slope	horizontal line
Undefined Slope	vertical line

BOX 2

Slopes of Parallel Lines	same slope
Slopes of Perpendicular Lines	opposite reciprocals
"if and only if" for	

BOX 3 - Example 1
Find the slope of line a and line c.

line a
 $(4, 6), (0, 2)$
 x_1, y_1, x_2, y_2
 $\frac{2-6}{0-4} = \frac{-4}{-4} = 1$

line c
 $(0, 6), (4, 6)$
 x_1, y_1, x_2, y_2
 $\frac{6-6}{4-0} = \frac{0}{4} = 0$

BOX 4 - Example 2
Find the slope of each line. Which lines are parallel?

$K_1 (-4, -6), (-3, -1)$
 x_1, y_1, x_2, y_2
 $\frac{-1 - (-6)}{-3 - (-4)} = \frac{5}{1} = 5$

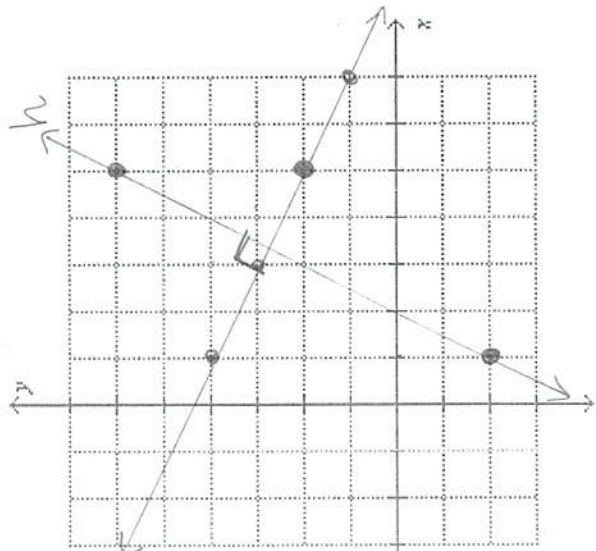
$K_2 (2, 2), (1, -4)$
 x_1, y_1, x_2, y_2
 $\frac{-4 - 2}{1 - 2} = \frac{-6}{-1} = 6$

$K_3 (4, 2), (3, -3)$
 x_1, y_1, x_2, y_2
 $\frac{-3 - 2}{3 - 4} = \frac{-5}{-1} = 5$

$K_1 \parallel K_3$

BOX 5 - Example 3

Line h passes through points $(1, -2)$ and $(5, 6)$. Graph the line perpendicular to h that passes through the point $(5, 2)$.

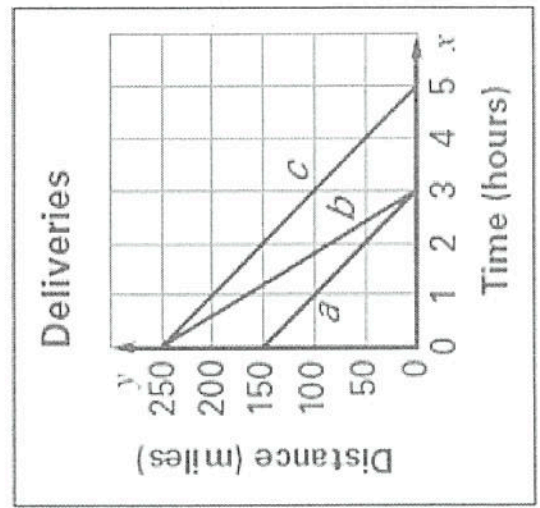


$$\text{slope of } h = \frac{6 - (-2)}{5 - 1} = \frac{8}{4} = 2$$

$$\text{perp. slope} = -\frac{1}{2}$$

BOX 6 - Example 4

Analyze the graph. A trucker made three deliveries. The graph shows the trucker's distance to the destination from the starting time to the arrival time for each delivery. Use the slopes of the lines to make a statement about the deliveries.



$$a \rightarrow (0,150), (3,0) \\ = \frac{0-150}{3-0} = \frac{-150}{3} = -50$$

$$b \rightarrow (0,250), (3,0) \\ = \frac{0-250}{3-0} = \frac{-250}{3} = -83.3$$

$$c \rightarrow (0,250), (5,0) \\ = \frac{0-250}{5-0} = \frac{-250}{5} = -50$$

Delivery a + Delivery c get delivered in the same amount of time, 50 mph.