

Section/Lesson Title: EQUATIONS OF LINES

Materials:

WS, DIAGRAM OF  $\perp$  LINES, ASSIGNMENT SHEET, PAGE 1 ACT TEST

HW#

2.1 WS

Reflections:

I EQUATIONS OF LINESA. SLOPE-INTERCEPT ( $y = mx + b$ )      GENERAL ( $ax + by = c$ )

GRAPH:

$$y = \frac{1}{2}x + 3$$

$$2x + 6y = -12 \quad (\text{USE INTERCEPTS})$$

B. FIND SLOPE & Y-INTERCEPT OF LINE

$$3(x-2) + y = 7 - 6(y+4)$$

$$[m = -\frac{3}{7} \quad b = -\frac{11}{7}]$$

C. WRITE EQ. OF LINE1) (6,7) AND (2,10) ARE PTS ON THE LINE  $[y = -\frac{3}{4}x + \frac{23}{2}]$ 2)  $\parallel$  &  $\perp$  LINES  $\rightarrow$  SHOW OVERLAYS

= SLOPE

OPP. RECIPROCAL SLOPE

FIND EQ. OF LINE  $\perp$  TO  $2x + 3y = 4$  THAT PASSES THROUGH (2,1)1st

$$2x + 3y = 4$$

$$3y = -2x + 4$$

$$y = \left(-\frac{2}{3}\right)x + \frac{4}{3}$$

$$m = -\frac{2}{3} \rightarrow \perp m = \frac{3}{2}$$

2nd

$$y = mx + b$$

$$5 = \frac{3}{2} \cdot 2 + b$$

$$2 = b$$

$$\boxed{y = \frac{3}{2}x + 2}$$

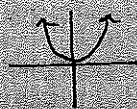
D. AVERAGE RATE OF CHANGE1)  $y = 50 + .5x$  TO RENT A CAR, YOU PAY \$50 PLUS 50¢/MILE

slope = AVERAGE RATE OF CHANGE

50¢/MILE  $\rightarrow$  EACH ADDITIONAL MILE COSTS \$ .50

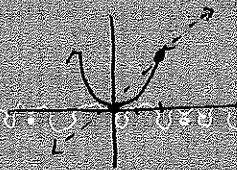


2) NOT EVERYTHING IS LINEAR

$$y = x^2$$


So THE CHANGE RATE IS NOT CONSTANT  
BUT, you can find the AVERAGE  
RATE OF CHANGE BETWEEN ANY 2 PTS  $\rightarrow$  Slope

a)  $x_1 = 0$  TO  $x_2 = 2$  FOR FUNCTION  $y = x^2$



$$x_1 = 0 \rightarrow y = 0^2 = 0 \quad (0, 0)$$

$$x_2 = 2 \rightarrow y = 2^2 = 4 \quad (2, 4)$$

$$\text{Slope} = \frac{4-0}{2-0} = \boxed{2} \quad \text{AVERAGE RATE OF CHANGE}$$

b)  $x_1 = 1$   $x_2 = 4$

$$(1, 1)$$

$$(4, 16)$$

$$\text{Slope} = \frac{16-1}{4-1} = \frac{15}{3} = \boxed{5}$$

