

BE-1A MONDAY 2-25-08

WRITE THE EOL (EQUATION OF THE LINE):

① through $(-3, 0)$, $(-4, 6)$

② WITH A SLOPE OF $\frac{2}{3}$ AND through $(3, -3)$

* ③ WITH A SLOPE OF 3 AND through $(1, 3)$

④ WHAT IS THE SLOPE OF A horizontal line? A vertical line?

* LINES THAT PASS THROUGH the origin, which means $b=0$, are so common they have their own vocabulary. They have the form $y=mx$ and are called Direct Variations

Ch. 5-2 Slope AND Direct Variation

For historical reasons, a direct
variation $y = mx$ is often

WRITTEN:

$$\begin{array}{c}
 \uparrow \\
 \text{SLOPE} \\
 \text{CONSTANT OF VARIATION} \\
 \downarrow \\
 y = kx
 \end{array}$$

k and m ARE THE SAME! BUT you
would only use k , the CONSTANT OF VARIATION,
if $b = 0$.

- NAME THE CONSTANT OF VARIATION:

$$y = 2x$$

$$y = -\frac{1}{3}x$$

- NAME THE SLOPE AND y -INTERCEPTS:

Often, you won't be told $b=0$, you will just be told "y varies directly as x", it is expected that you know this means $b=0$!!!

EX 4 (A) Suppose y varies directly as x and $y=28$ when $x=7$. Write a direct variation equation that relates x and y.

WHAT you know: $b=0$, $(7, 28)$ is on line
 x, y

$$y = mx + b$$

$$28 = m \cdot 7 + \cancel{b} \rightarrow 0$$

$$\frac{28}{7} = \frac{7m}{7}$$

$$4 = m$$

$$\boxed{y = 4x}$$

or

$4 = k$ the constant of variation

EX 4
Pg 266

⑤ Using the EOL you found in part (A), find x when $y = 52$

Since $y = 4x$

$$\frac{52}{4} = \frac{4x}{4}$$

$$\boxed{13 = x}$$

the ordered pair is $(13, 52)$

EX 5
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A flock of geese went 375 miles in 7.5 hours. Write a direct variation equation for the distance flown in any time.

hours, miles

$$b = 0, (7.5, 375)$$

$$y = mx + 0$$

$$d = mh \quad \text{so} \quad \frac{375}{7.5} = \frac{7.5m}{7.5}$$

$$50 = m \therefore \boxed{d = 50h}$$

$d = rt$

↑
 x

LOOK AT GRAPH AT TOP OF
Pg. 267.

Practice: Pg. 267 # 4-9

Your turn # 10

Homework: Pg 268 # 15, 18, 21
33 to 35