

1A-BE TUESDAY 2-23-10

- ① Find m through $(4, 2), (0, 0)$
- ② Write the EOL for the line in #① above.
- ③ Find m through $(0, 0), (5, -2)$
- ④ Write the EOL for the line in # 3 above.

NOTE: LINES THAT PASS THROUGH
the origin $b = 0$

$$\therefore y = mx + b$$

$$= y = mx$$

Are so common they have their own
name. They are called Direct Variations
(ref. Chapter 5-2)

Homework Reviews: Pg 818-819 #1, 2, 4, 5, 7.

If you see the words, "y varies directly as x" ...

write $b = 0$

$$y = \textcircled{m}x$$

you will be given one (x, y) pair,
use the (x, y) to find m .

Ex (A) y varies directly as x. $y = 28$ when $x = 7$. Write the D.V. equation.

$$y = \textcircled{m}x \quad b = 0 \quad \begin{matrix} (7, 28) \\ x, y \end{matrix}$$

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

$$\textcircled{4 = m} \quad \therefore \boxed{y = 4x} \text{ EOL}$$

⑥ Find x when $y = 52$

$$y = 4x \quad \therefore$$

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

$$\boxed{13 = x}$$

⑦ Find y when x is -2

$$y = 4x$$

$$y = 4(-2)$$

$$\boxed{y = -8}$$

Just so you know, for historical reasons when you have a D.V.

M is often called K , the CONSTANT OF VARIATION

M and K ARE THE SAME THING!

$$M = K = \frac{\text{rise}}{\text{run}} = \text{SLOPE} = \text{CONSTANT OF VARIATION}$$



ONLY USED WHEN $b=0$ but M can still be used!!

ⓧ WRITE A DV EQUATION. Assume y varies directly as x . Then solve (for given item).

Ⓐ If $y=27$ when $x=6$. Find x when $y=45$.

PART I = EOL

$$y = mx \quad b=0 \quad (6, 27)$$

x, y

$$\frac{27}{6} = \frac{m \cdot 6}{6}$$

$$\frac{9}{2} = m$$

$$y = \frac{9}{2}x$$

PART II - USE EOL

$$y = \frac{9}{2}x$$

$$\frac{2}{9} \cdot 45 = \frac{9}{2}x \cdot \frac{2}{9}$$

$$10 = x$$

Ex $y = 10$ when $x = 9$. Find x when $y = 9$

EOC

use EOC

$$y = mx + b = 0 \quad (9, 10)$$

x, y

$$\frac{10}{9} = \frac{m \cdot 9}{9}$$

$$\frac{10}{9} = m$$

$$y = \frac{10}{9}x$$

$$y = \frac{10}{9}x$$

$$\frac{9}{10} \cdot 9 = \frac{10}{9}x \cdot \frac{9}{10}$$

$$\frac{81}{10} = x$$

$$\text{or } 8.1 = x$$

Homework: Pg 268 # 21, 25, 33 to 36.