

BE-PRECALC TUESDAY 8-25-09

MENTAL MATH Warmup:

① $6\left(\frac{3}{8}\right)$

② $\frac{8}{\frac{12}{5}}$

③ $\frac{\frac{9}{10}}{\frac{2}{3}}$

④ $-8-2-6+3$

⑤ $-\frac{5}{8}\left(-\frac{1}{5}\right)$

Linear Equations:

⑥ Graph $y = -\frac{3}{4}x + 5$

⑦ Find m through $(6, -1), (3, -5)$

⑧ The slope of a horizontal line is _____
and the slope of a vertical line is _____.

ACT
KMF
June 09

① If $9(x-9) = -11$ then $x = ?$

② If $r = 9$, $b = 5$, and $g = -6$, what does $(r+b-g)(b+g)$ equal?

③ The expression $(3x-4y^2)(3x+4y^2)$ is equivalent to what?

$$\textcircled{1} \quad 9(x-9) = -11$$

$$9x - 81 = -11$$

+81 +81

$$\frac{9x}{9} = \frac{70}{9} \quad \therefore \boxed{x = \frac{70}{9}}$$

$$\textcircled{2} \quad r = 9, b = 5, g = -6$$

$$\left[\begin{matrix} r & + & b & - & g \\ () & + & () & - & () \end{matrix} \right] \left[\begin{matrix} (b + g) \\ () & + & () \end{matrix} \right]$$

ONE
LINE
FOR
YOU

$$\left[(9) + (5) - (-6) \right] \left[(5) + (-6) \right]$$

$$\left[14 + 6 \right] \left[-1 \right] = \boxed{-20}$$

$$\textcircled{3} \quad (3x - 4y^2)(3x + 4y^2)$$

$$\downarrow$$

$$\boxed{9x^2 - 16y^4}$$

DIFF. of Squares
 $(a-b)(a+b)$
 $a^2 - b^2$

Mental Math
10 sec problem

Conjugates

Long way

$$(3x - 4y^2)(3x + 4y^2)$$

$$9x^2 + \underline{12xy^2} - \underline{12y^2x} - 16y^4$$

$$9x^2 - 16y^4$$

Pg. 20

11. $\begin{matrix} x & , & y \\ \text{(tibia length in cm, height in cm)} \end{matrix}$

A $\boxed{(38.5, 173), (44.125, 188)}$

B $m \Rightarrow (38.5, 173), (44.125, 188)$

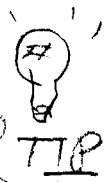
$$\frac{188 - 173}{44.125 - 38.5} = \frac{15}{\frac{45}{8}} = \frac{15 \cdot 8}{45} = \frac{8}{3} = m$$

$$\begin{array}{r} 44.125 \\ - 38.500 \\ \hline 5.625 \end{array}$$

NOTE: $5.625 = 5\frac{5}{8} = \frac{45}{8}$

SINCE every .125 is $\frac{1}{8}$

AND .500 = $\frac{1}{2} = \frac{4}{8}$



C $\frac{8}{3} = m = \frac{\text{height}}{\text{tibia length}} \therefore \text{for every } 3\text{ cm } \uparrow \text{ in tibia length, height } \uparrow 8\text{ cm}$

12-17 GRAPH

24-26 $\Rightarrow$ Zeros

Ch. 1-4 Writing Linear Equations

Find the EOL (Equation of the Line)
Through $(3, 2)$, $(1, -6)$

" $y = mx + b$ twice" method

Step 1 }
Find m }

$$(3, 2), (1, -6)$$

$$m = \frac{-6 - 2}{1 - 3} = \frac{-8}{-2}$$

$$m = 4$$

Step 2 }
Use
 $y = mx + b$
AND
1 point
TO
Find b }

$$(3, 2) \quad m = 4$$

$$y = mx + b$$

$$2 = 3 \cdot 4 + b$$

$$2 = 12 + b$$

$$-12 \quad -12$$

$$-10 = b$$

$$y = mx + b$$

$$\therefore y = 4x - 10$$

Final
Step 1 }
Use m, b
to write EOL

Check with other point $\Rightarrow (1, -6)$

$$-6 \stackrel{?}{=} 4(1) - 10$$

$$-6 = 4 - 10 \quad \checkmark$$

Notes: • If you know m and 1 point, start at step 2.
• If you know m and b , start at step 3.

Another method for finding the EOL

If $m = \frac{Y_2 - Y_1}{X_2 - X_1}$ And (X, Y) is any (X, Y)
 And (X_1, Y_1) is A known point.

Then $m = \frac{(Y - Y_1)}{(X - X_1)}$

$(X - X_1) m = \frac{(Y - Y_1)}{\cancel{(X - X_1)}} \cdot \cancel{(X - X_1)}$

or $m(X - X_1) = Y - Y_1$ or $\boxed{Y - Y_1 = m(X - X_1)}$

$\downarrow$ slope
 $\uparrow$ $(X_1, Y_1) = \text{known point}$

POINT-SLOPE FORM
OF A LINEAR EQUATION

① Ex $(3, 2), (1, -6)$ $m = \frac{-6 - 2}{1 - 3} = \frac{-8}{-2} = \boxed{4 = m}$

X_1, Y_1

$Y - Y_1 = m(X - X_1)$

$\therefore \boxed{Y - 2 = 4(X - 3)}$ P.S. Form

CK $\Rightarrow Y - 2 = 4X - 12$
 $Y = 4X - 10 \checkmark$

Ex 1 Pg 27 Find the EOL in S-I Form.

(A) $\text{slope} = -\frac{3}{4}$ $y\text{-intercept} = 7$

(B) $\text{slope} = -6$ passes through $(1, -3)$

Graph these. Try with P-S Form

(Ex) EOL Through $(-3, 2), (-2, 4)$
 we use $y = mx + b$ twice and P-S Form!

Homework: Pg. 30 # 11, 12, 17, 18, 19, 23