LITERAL EQUATIONS

AGENDA

Warm-Up

HW Check

Notes

Practice

Project Introduction

14 DAYS LEFT OF SCHOOL

WARM-UP

90

1. The measure of one of two complementary angles is 20 degrees larger than the other. What is the measure of the larger angle?

A. 35 degrees B. 55 degrees

C. 80 degrees D. 100 degrees

$x + x + 20 = 90$

$2x + 20 = 90$

$-20 \quad -20$

$\frac{2x}{2} = \frac{70}{2}$

$x = 35$

If you have not done so already, on an index card, write the following:

Name: _____

ID #: _____

Calculator #: _____

(find on the barcode by the batteries or engraved on the back)

If you didn't check out a calculator, please note that and if you don't have your calculator today, FOR SHAME. Your name will be on the hold list until you return it.

HW CHECK

GO SHOPPING

THE CHANGE WILL DO YOU GOOD

II I

III IV

Name: _____ Date: _____ Period: _____

What did Dr. Drone Say To the Guy who Thought He Was a $100 Bill?

Simplify the radical expression completely and find your answer in the adjacent answer column.
Write the letter of the exercise in the box that contains the number of the answer. Use the back or a piece of scratch paper to show your work.

1	2	3	4	5	6	7	8	9	10	11

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38

G	$\sqrt{12}$
i	$\sqrt{50}$
O	$\sqrt{45}$
E	$\sqrt{600}$
S	$\sqrt{98}$
U	$\sqrt{48}$
O	$\sqrt{125}$
W	$\sqrt{162}$

9	$5\sqrt{2}$
2	$5\sqrt{5}$
33	$4\sqrt{3}$
14	$10\sqrt{6}$
20	$2\sqrt{3}$
23	$9\sqrt{2}$
36	$3\sqrt{5}$
4	$7\sqrt{2}$

A	$2\sqrt{18}$
O	$8\sqrt{28}$
G	$-3\sqrt{1000}$
E	$5\sqrt{75}$
D	$-4\sqrt{490}$
L	$9\sqrt{72}$
H	$-7\sqrt{80}$
O	$3\sqrt{144}$

6	36
18	$6\sqrt{2}$
21	$25\sqrt{3}$
26	$54\sqrt{2}$
29	$16\sqrt{7}$
13	$-28\sqrt{5}$
11	$-30\sqrt{10}$
38	$-28\sqrt{10}$

Y	$\left(2\sqrt{2}\right)^2$
N	$\left(3\sqrt{5}\right)^2$
H	$\left(\sqrt{25}\right)^2$
T	$\left(\sqrt{6}\right)^2$
O	$\left(4\sqrt{16}\right)^2$
L	$\left(5\sqrt{25}\right)^2$
P	$\left(\sqrt{4}\right)^2$
G	$\left(7\sqrt{2}\right)^2$

17	25
7	4
10	45
25	625
12	6
1	98
31	8
32	256

O	$\sqrt{\frac{16}{25}}$
D	$\sqrt{\frac{4}{9}}$
G	$\sqrt{\frac{12}{4}}$
i	$\sqrt{\frac{18}{9}}$
C	$\sqrt{\frac{45}{9}}$
P	$\sqrt{\frac{20}{5}}$
N	$\sqrt{\frac{50}{162}}$
H	$\sqrt{\frac{36}{6}}$

8	2
28	$\frac{2}{3}$
5	$\sqrt{6}$
24	$\sqrt{2}$
37	$\frac{4}{5}$
19	$\frac{5}{9}$
16	$\sqrt{5}$
35	$\sqrt{3}$

LITERAL EQUATIONS

To solve for a specified variable in an equation or formula, use inverse operations.

highlight/circle variable solving for

Add ⇔ subtraction
mult ⇔ divide

1. Solve for b_1 given $A=\frac{1}{2}(b_1+b_2)h$

$2A=(b_1+b_2)h$

$\frac{2A}{h}=b_1+b_2$

$\frac{2A}{h}-b_2=b_1$

2. Solve for l $S=\pi rl+\pi r^2$

$S-\pi r^2=\pi rl$

$\frac{S-\pi r^2}{\pi r}=l$

3. Solve for T_f $Q=mc\Delta T$ where $\Delta T=T_f-T_i$

change in

$Q=mc(T_f-T_i)$

$\frac{Q}{mc}=T_f-T_i$

$\frac{Q}{mc}+T_i=T_f$

4. Solve for temperature (T) $PV=nRT$

$\frac{PV}{nR}=T$

5. Solve for volume (V) $D=\frac{m}{V}$

fraction CROSS MULTIPLY

$DV=m$

$V=\frac{m}{D}$

Name: _____ Date: _____ Period: _____

What did Dr. Dudd say to the boy who swallowed a spoon?

Solve the formula for the indicated variable, then circle the letter next to your answer. Write this letter in the box at the bottom of the page containing the exercise number. Use the back or a piece of scratch paper to show your work.

1. $W = rt$, for t

   (D) $t = \frac{W}{r}$

   (V) $t = Wr$

2. $h = \frac{A}{b}$, for A

   (Y) $A = \frac{b}{h}$

   (O) $A = bh$

3. $I = \frac{P}{E}$, for E

   (G) $E = \frac{I}{P}$

   (T) $E = \frac{P}{I}$

4. $P = \frac{V^2}{R}$, for R

   (S) $R = V^2P$

   (I) $R = \frac{V^2}{P}$

5. $K = \frac{abc}{3y}$, for y

   (N) $y = \frac{abc}{3K}$

   (P) $y = \frac{Ka}{3bc}$

6. $\frac{M}{N} = \frac{P}{Q}$, for Q

   (E) $Q = \frac{PM}{N}$

   (O) $Q = \frac{NP}{M}$

7. $a = \frac{v - v_i}{t}$, for v

   (D) $v = at + v_i$

   (R) $v = a - tv_i$

8. $\frac{E}{e} = \frac{B+b}{b}$, for e

   (U) $e = \frac{E+b}{Eb}$

   (A) $e = \frac{Eb}{B+b}$

9. $Q = mc(T_f - T_i)$, for T_i

   (S) $T_i = \frac{-Q}{mc} + T_f$

   (O) $T_i = \frac{Q}{mc} - T_f$

10. $PV = nRT$, for V

    (L) $V = \frac{nRT}{P}$

    (T) $V = nPRT$

11. $A = \frac{1}{2}(b_1 + b_2)h$, for h

    (D) $h = \frac{2A}{b_1 + b_2}$

    (R) $h = \frac{A}{2(b_1 + b_2)}$

12. $A = \frac{1}{2}aP$, for P

    (A) $P = \frac{A}{2a}$

    (E) $P = \frac{2A}{a}$

13. $y = mx + b$, for b

    (T) $b = y + mx$

    (R) $b = y - mx$

14. $\frac{h}{g} = \frac{kB}{d^2}$, for B

    (N) $B = \frac{hd^2}{kg}$

    (O) $B = \frac{kd^2}{gh}$

15. $m = \frac{F(L-x)}{x}$, for L

    (W) $L = \frac{mx}{F} + x$

    (F) $L = \frac{F}{mx} - x$

16. $\frac{1}{d} = \frac{d}{p+q}$, for q

    (E) $q = p - d^2$

    (I) $q = d^2 - p$

17. $a = \frac{v_f - v_i}{\Delta t}$, for v_f

    (N) $v_f = a\Delta t + v_i$

    (R) $v_f = a\Delta t - v_i$

18. $F_e = k_c\left(\frac{q_1 q_2}{d^2}\right)$, for q_1

    (T) $q_1 = \frac{F_e d^2}{k_c q_2}$

    (S) $q_1 = \frac{k_c q_2}{F_e d^2}$

10	16	12	7	2	15	5	8	14	1	11	6	17	3	9	18	4	13
														S	T		

9. $\frac{Q}{mc} = \frac{mc(T_f - T_i)}{mc}$

$\frac{Q}{mc} = T_f - T_i$

$-T_f \quad -T_f$

$-\frac{Q}{mc} + T_f = +T_i$

18. $F_e = \frac{q_1 q_2}{d^2}$

$k_c \quad k_c$

$F_e d^2 = k_c q_1 q_2$

$k_c q_2 \quad k_c q_2$

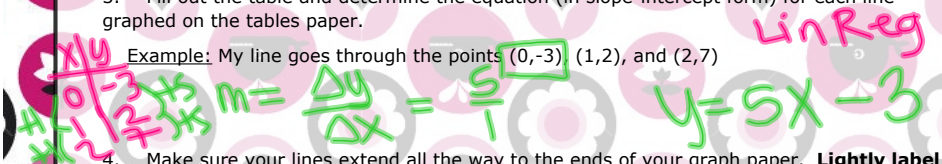
Stained glass window project 2014

The purpose of this project is to use linear equations to design a stained glass window. You will include lines with zero, undefined, positive and negative slopes. The skills of graphing and writing linear equations will be used to create your stained glass window. For examples of previous students work, visit this website: http://goo.gl/MCxdlo .

Procedure:

1. Start with a grid piece of graph paper (attached) with the x and y axes in the center of the paper.
2. Create your stained glass window by drawing 5 horizontal lines, 5 vertical lines, 5 lines with positive slope, and 5 lines with negative slope.
3. Fill out the table and determine the equation (in slope-intercept form) for each line graphed on the tables paper.

Example: My line goes through the points (0,-3), (1,2), and (2,7)



4. Make sure your lines extend all the way to the ends of your graph paper. **Lightly label each line with numbers corresponding to the numbers on your tables.**
5. Now go in and color **each** section. Be careful that the equations of the lines are still visible (go over them in a dark marker). Use colored pencils, markers, paint, glitter, colored paper, etc., to make your stained glass window unique and beautiful.
6. Mount your stained glass window on the colored piece of paper provided.
7. Attach your tables and equations to your final project.
8. BONUS: In addition to your 20 lines, use at least 5 quadratic equations. You must also write their equations (in standard form) on a separate sheet of paper and attach them to your final project.

Due Dates:

Equations (in slope intercept form) & Draft:	**Wednesday, May 21st (Beginning of class)**
Final Project (due at the end of class):	**Friday, May 23rd**

STAINED GLASS WINDOW PROJECT
Scoring Guide

QUIZ

This project is worth 100 points

20 points for 5 horizontal lines and their equations	_____/20
20 points for 5 vertical lines and their equations	_____/20
20 points for 5 negative slope lines and their equations	_____/20
20 points for 5 positive slope lines and their equations	_____/20
10 points for meeting the deadlines	_____/10
10 points for creativity, neatness and uniqueness	_____/10
BONUS: 15 points for 5 quadratic equations	_____/15

Total: _____/100

Your entire (completed) HW 6.5 is due by the end of class. While you work I will call you up one by one to return your calculator. Bring your index card. There will be a class set of calculators to use in class and on your final exam.

If you do not have your school calculator today, your name will be on the hold list until you return your calculator, bring a new TI-83 or TI-84 or go to the library and pay $120 (bring me the receipt). If your name is on the hold list, you will not receive your report card or be able to register for classes in the fall.