Warm-up 4/30

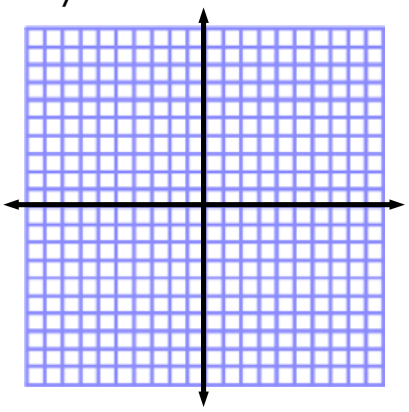
Solve the following equations and inequalities.

1. $2x - 4 = 3(2x - 8)$

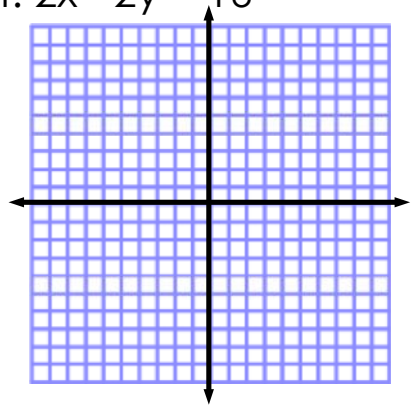
2. $3x > 4x - 8$

Graph the following linear functions.

3. $y = 4x - 8$



4. $2x - 2y = 16$



Warm-up 4/30

Solve the following equations and inequalities.

1. $2x - 4 = 3(2x - 8)$

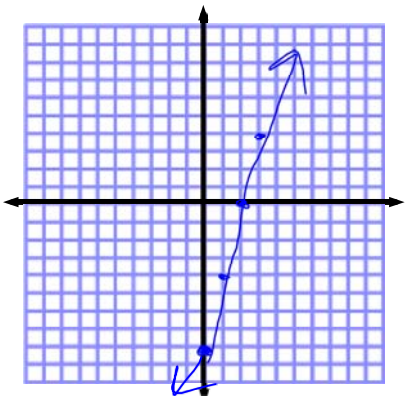
$2x-4=6x-24$
$-6x \quad -6x$
$-4x-4=-24$
$+4 \quad +4$
$-4x=-20$
$\frac{-4x}{-4}=\frac{-20}{-4}$
$x=5$

2. $3x > 4x - 8$

$-4x \quad -4x$
$-1x > -8$
$\frac{-1x}{-1} > \frac{-8}{-1}$
$x < 8$

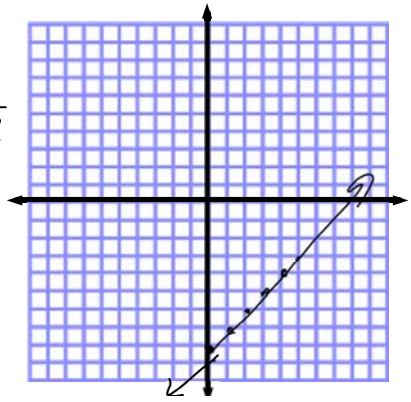
Graph the following linear functions.

3. $y = 4x - 8$



$2x-2y=16$
$-2x \quad -2x$
$\frac{-2y}{-2}=\frac{-2x+16}{-2}$
$y=x-8$

4. $2x - 2y = 16$



Warm-up 4/30

Solve the following equations and inequalities.

1. $2x - 4 = 3(2x - 8)$

$2x - 4 = 6x - 24$

$-6x \quad -6x$

$-4x - 4 = -24$

$+4 \quad +4$

$\frac{-4x}{-4} = \frac{-20}{-4}$

$x = 5$

2. $3x > 4x - 8$

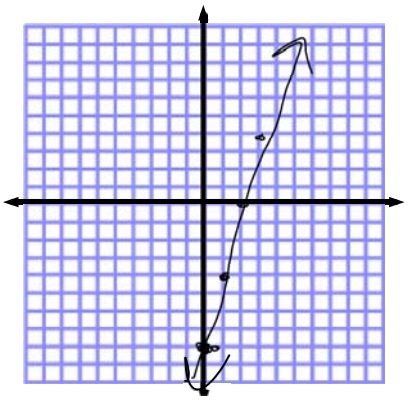
$-4x \quad -4x$

$\frac{-x}{-1} > \frac{-8}{-1}$

$x < 8$

Graph the following linear functions.

3. $y = 4x - 8$



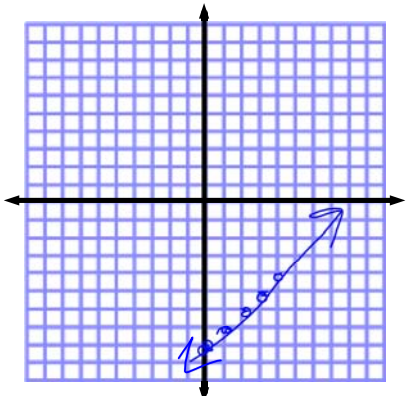
$-2x - 2y = 16$

$-2x \quad -2x$

$\frac{-2y}{-2} = \frac{-2x + 16}{-2} \quad -2$

$y = x - 8$

4. $2x - 2y = 16$



Jake is modeling a company's growth. He has gathered the following data points given items sold and profit made. Create an equation to model this situation.

Items	Profit
4	25
6	30
8	35
10	40
12	45
14	50

2 → 5, 2 → 5, 2 → 5, 2 → 5, 2 → 5

$m = \frac{5}{2}$

$\frac{30-25}{6-4} = \frac{5}{2}$

(2, 20)
(0, 15)

$y = \frac{5}{2}x + 15$

Press [STAT] and highlight 1: Edit and hit [ENTER] A blank table should appear. Under L1 you are going to list the x's and under L2 you are going to list the y's.

Now you need to find the "curve of best fit". This will make an equation that *best models* your data. Go to your home screen my pressing [2ND] [MODE], click [STAT], scroll right to CALC, select LinReg, and press [ENTER].

Items	Profit
4	25
6	30
8	35
10	40
12	45
14	50

$y = ax + b$

$a = 2.5$

$b = 15$

$y = 2.5x + 15$

Margo is modeling a company's growth. She has gathered the following data points given items sold and profit made. Create an equation to model this situation.

$y = 1.5(2^x)$

Items	Profit
1	3
2	6
3	12
4	24
5	48
6	96

(0, 1.5)

×2 ×2 ×2 ×2 ×2

Press [STAT] and highlight 1: Edit and hit [ENTER] A blank table should appear. Under L1 you are going to list the x's and under L2 you are going to list the y's.

Now you need to find the "curve of best fit". This will make an equation that *best models* your data. Go to your home screen my pressing [2ND] [MODE], click [STAT], scroll right to CALC, select ExpReg, and press [ENTER].

$y = ab^x$

$a = 1.5$

$b = 2$

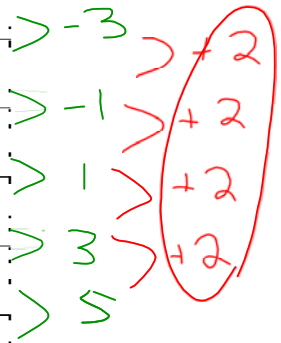
$y = 1.5(2^x)$

Items	Profit
1	3
2	6
3	12
4	24
5	48
6	96

Martha is modeling a company's growth. She has gathered the following data points given items sold and profit made. Create an equation to model this situation.

$y = x^2$

Items	Profit
-2	4
-1	1
0	0
1	1
2	4
3	9



Press STAT and highlight 1: Edit and hit ENTER A blank table should appear. Under L1 you are going to list the x's and under L2 you are going to list the y's.

Now you need to find the "curve of best fit". This will make an equation that *best models* your data. Go to your home screen my pressing 2ND MODE, click STAT, scroll right to CALC, select QuadReg, and press ENTER .

Items	Profit
-2	4
-1	1
0	0
1	1
2	4
3	9

$y = ax^2 + bx + c$

$a = 1$

$b = 0$

$c = 0$

$y = x^2$

Regression Line Worksheet

1. The table gives the Olympic pole vault records in the twentieth century.

(a) Find the regression line for the data

Equation:_____

(b) Make a scatter plot of the data on your calculator and graph the regression line. Does the regression line appear to be a suitable model for the data?

Yes or No

(c) Use the model to predict the record pole vault height for the 2004 Olympics. Find the actual record height and by whom. Is this a good prediction?

(d) Use the model to predict the record pole vault height for the 2008 Olympics. What was the actual gold metal height and by whom? Is this a good prediction?

Year	Height (m)
1900	3.30
1904	3.50
1906	3.50
1908	3.71
1912	3.95
1920	4.09
1924	3.95
1928	4.20
1932	4.31
1936	4.35
1948	4.30
1952	4.55
1956	4.56
1960	5.10
1964	5.64
1968	5.40
1972	5.64
1976	5.64
1980	5.78
1984	5.75
1988	5.90
1992	5.87
1996	5.92
2000	5.90

(e) Use the model to predict the record pole vault height for the 2012 Olympics. Do you think the actual record in 2012 will be higher or lower than this prediction? Why?

Homework

USATestPrep Practice

Regression worksheet