Test Review: Linear Concepts

Directions...
> Read each question carefully.
> Show all work for full credit.

1. What does the word *slope* mean and what *formula* do you use to find it?

2. Find the slope for each of the following.

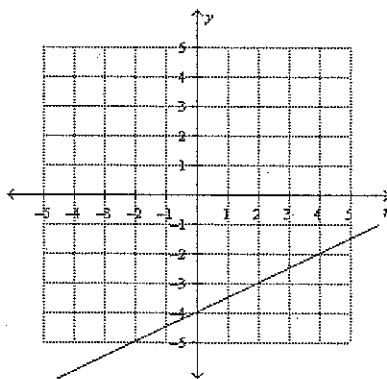   a. $y = 2x - 7$

   b. $y = -\frac{2}{3}x - 6$

   c.

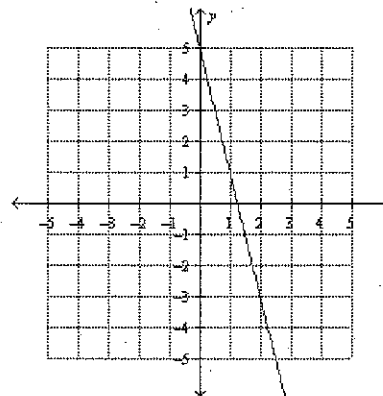 | X | y |
   |---|---|
   | 2 | 4 |
   | 4 | 2 |
   | 6 | 0 |
   | 8 | -2 |

   d.

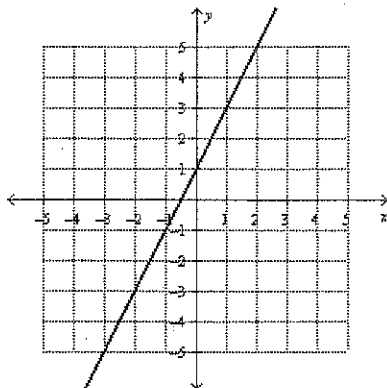 | X | y |
   |---|---|
   | -12 | 10 |
   | -9 | 1 |
   | -6 | -8 |
   | -3 | -17 |

   e.

   f.

   g. (2, -1) (8, 4)

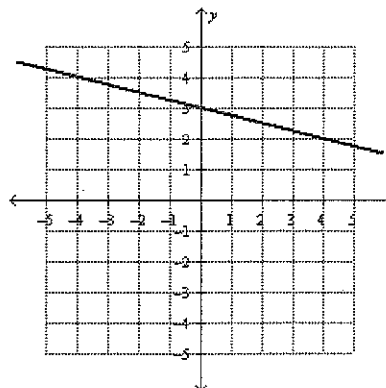   h. (4, 10) (10, 12)

   i. (-6, -4) (6, 1)

3. What is the general form of a **linear equation** and what does the m and the b stand for?

4. Write a linear equation for each of the following...

   a.

   b.

5. For each of the following, **find the slope and y-intercept, then write an equation.**

   a.

x	y
-3	12
0	24
3	36
6	48
9	60

   slope = _____

   y-intercept = _____

   equation:

   b.

x	y
2	16
4	8
6	0
8	-8
10	-16

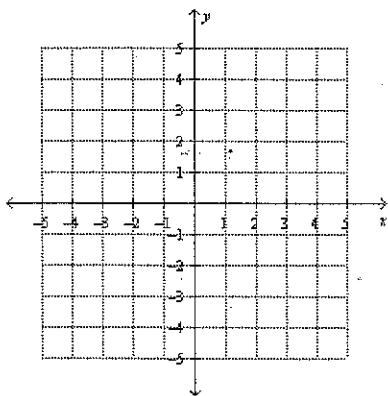   slope = _____

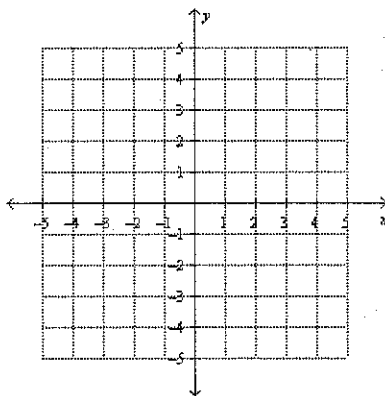   y-intercept = _____

   equation:

6. Graph each of the following lines...
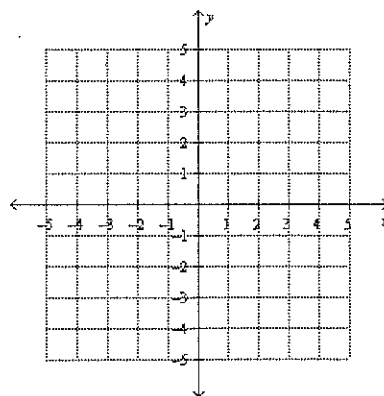
   a. $y = 3x - 5$

   b. $y = \frac{1}{4}x + 2$

   c. $y = 4 - \frac{2}{3}x$

7. The golf club is looking for new members. There are currently 6 students in the club, but every day three more people sign up.

a. Identify the input and the output for the situation and create a table.

Input: _____   Output: _____

Input:					
Output:					

b. Draw a graph of the situation. Be sure to label each axis.

c. Write a linear equation that represents the situation. _____

d. **Use the equation** you wrote in part c to answer each of the following...

   i.   How many students are in the club after 4 days?

   ii.   If there are 27 people in the club, how many days have gone by?

e. What is the *slope* of this situation? What is the *y-intercept* of this situation?

8. Write the *equation* for the line that goes through each pair of points listed below...
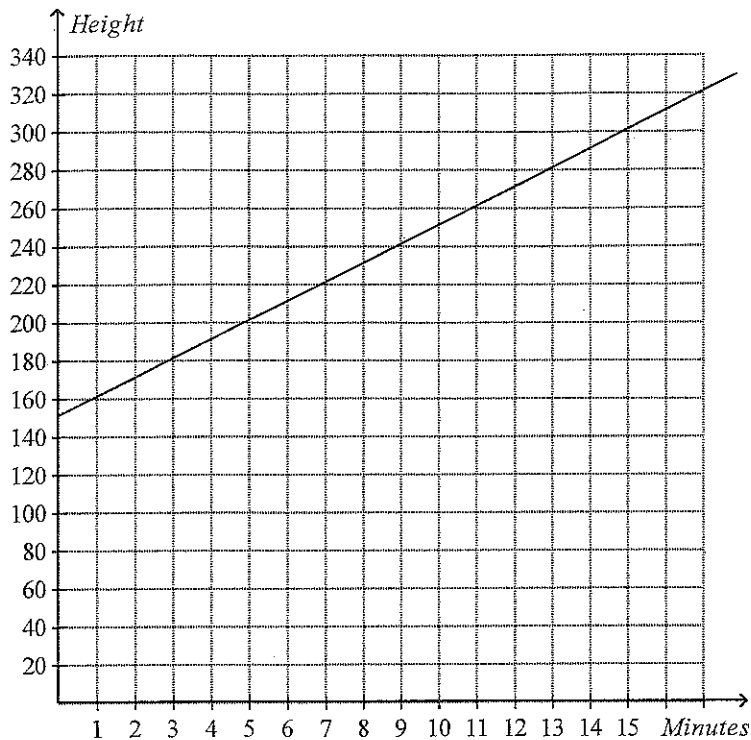
   a. (9, 10) and (3, -2)   b. (-1, -5) and (6, -10)

9. Two men are climbing a mountain.

Ted:

Minutes	Height (ft)
0	200
5	240
10	280
15	320

Ross:

a. Who is climbing faster?

b. Who starts out higher on the mountain?

c. Write an equation for each climber.

   i.   Ted: _____

   ii.   Ross: _____

10. Solve the equations...

1-Step Equations

   a. $x - 2 = 12$

   b. $-3.7 + x = 8$

   c. $-3x = 27$

   d. $\dfrac{x}{6} = -9$

2-Step Equations

   e. $4x - 9 = 19$

   f. $3 - \dfrac{3}{4}x = 43$

   g. $\dfrac{x}{5} - 2 = 3$

   h. $\dfrac{x}{-4} + 2 = 7$

Solving Multi-Step Equations

i. $3(x - 6) = 8$

j. $-\frac{1}{2}(4x + 8) = 9$

k. $4x + 5x = 18$

l. $6x - 8.2 - 3x = 2$

m. $7x - 2 + 3x + 6 = 84$

n. $4(x - 2) + 3x = 14$

Solving Equations With Variables on Both Sides

o. $2x - 8 = 5x + 8$

p. $14.5x + 2 = 4.5x + 18$

q. $6x - 6 = 2x - 8$

r. $3\frac{1}{2}x - 2 + \frac{1}{2}x = 5x$

s. $3(x - 4) = 5x$

t. $4x - 1 + 3x = 6x - 3x$