Name: _____   Date: _____

Linear Equations Review

1. Sam wants her friends to guess how many <u>cards</u> she has in her hand. She says that if the number of cards in her hand is <u>tripled</u>, then <u>4 are added</u>, then she has <u>22 cards</u>.

a). Write an equation that represents this word problem.
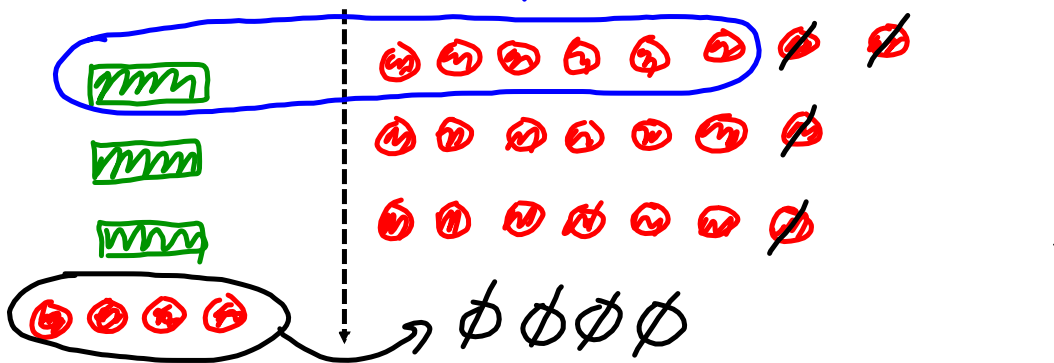
$$3 \cdot c + 4 = 22$$

b). What is being represented by the variable in your equation?

$$c \Rightarrow cards$$

c). Solve this equation with the help of a model.

$$3c + 4 = 22$$

$$c = 6$$

d). Verify the solution. Show your thinking.

$$3c + 4 = 22$$
$$3(6) + 4 = 22$$
$$18 + 4 = 22$$
$$22 = 22$$

2. Solve each equation.   Show your thinking for the solutions. Verify each of your solutions.

a) x + 8 = 17 − 8

$$x = 9$$

b) 4x - 6 = 18

c) 23 = $\frac{x}{3}$ - 6

$$23 + 6 = \frac{x}{3} - 6 + 6$$

$$3 \times 29 = \frac{x}{3} \times 3$$

Verify:

$$9 + 8 = 17$$
$$17 = 17$$

Verify:

Verify: $$87 = x$$

$$23 = \frac{87}{3} - 6$$
$$23 = 29 - 6$$

d) 4(x - 3) = - 36

$$4x - 12 = -36$$
$$4x - 12 + 12 = -36 + 12$$
$$\frac{4x}{4} = \frac{-24}{4}$$
$$\boxed{x = -6}$$

e) x - 5 = 12

$$23 = 23$$

Verify:
$$4(-6 - 3) = -36$$
$$4(-9) = -36$$
$$-36 = -36$$

Verify:

3. The Grade 8 students had an end of year dance. The disc jockey charged $85 for setting up the equipment, plus $2 for each student who attended the dance. The disc jockey was paid $197. How many students attended the dance?

a) Write an equation you can use to solve the problem.

$$85 + 2s = 197$$

b) Solve the problem.

$$85 + 2s = 197 - 85$$
$$2s = 112 \div 2$$
$$s = 56$$

c) Verify your solution.

$$85 + 2(56) = 197$$
$$85 + \boxed{112} = 197$$
$$\boxed{197} = 197$$

4). Graph the relation for the linear equation given: $y = 3x - 10$.

a) Find the values of y when the values of x are -3 to 3

x	y
-3	-19
-2	-16
-1	-13
0	-10
1	-7
2	-4
3	-1

b) Graph the values in the table above on the grid paper below.