Understanding Solving Equations by Balancing a Scale Part II

Each of the pieces of the algebra models represent an algebraic expression:

small yellow square - 1 unit tile
green rectangle - x tile
blue square - x^2 tile

small red square - negative 1 unit tile
red rectangle - negative x tile
red square - negative x^2 tile

Algebra tiles can be used to model solving equations.

1. Recall that you can keep the ***balanced*** scale in Figure 1 balanced by performing certain steps. Check off those steps that produced a balanced scale.

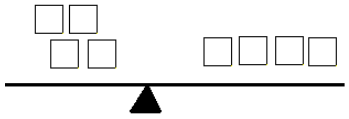

Figure 1

___Removing one yellow square from the left side and adding one red square to the right side of figure 1?

___Adding red square to the left side and removing one yellow square from the right side in figure 1?

___Adding 2 yellow squares tiles to both sides of figure 1?

___Adding 1 red square tile to both sides of figure 1?

___Adding 1 red square to the left side and one yellow square tile to the right side of figure 1?

___Adding double the number of tiles on both sides of figure 1?

___Adding one yellow square to the right side only in figure 1?

___Adding one red square to the left side only in figure 1?

___Cutting the number of tiles in half on each side of figure 1?

___Doubling the left side and dividing the right side by 2 in figure 1?

Set up each equation on the balance scale. Draw a sketch of your balance scale. Then use one of the techniques you have learned that keeps the scale balanced to find the value of x or the green rectangle. Check your answer to make sure it makes sense.

2. $x + -3 = -4$ X = _____

3. $2x + -3 = 5$ X = _____

4. $^{-}2x + {}^{-}3 = {}^{-}4 + -1x$  X = _____

5. $^{-}3 + x = 2x + 1$  X = _____

6. $^{-}4 = 2(x + 2)$  X = _____

7. $x + 4 = {}^{-}2x + {}^{-}2$  X = _____

8. $3x + {}^{-}3 = 2(x + 1)$  X = _____