Unit 2, Lesson 7

Why Is That Okay?

Let’s rewrite equations without changing their value.

7.1 Estimate: Equal Weights

How many unsharpened pencils are the same weight as a standard stapler?

1. Record an estimate that is:

too low	about right	too high

2. Explain your reasoning.

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7.2 What's the Same? What's Different?

For each pair of equations, decide whether the given value of x is a solution to one or both equations.

1. $x = 2$
   a. $x(2+3) = 10$
   b. $2x + 3x = 10$

2. $x = 3$
   a. $x - 4 = 1$
   b. $4 - x = 1$

3. $x = -2$
   a. $7x = -14$
   b. $x \cdot 14 = -28$

4. $x = -1$
   a. $x + 3 = 2$
   b. $3 + x = 2$

5. $x = -5$
   a. $3 - x = 8$
   b. $5 - x = 10$

6. $x = (8+1)+3$
   a. $\frac{12}{2} = \frac{1}{2}(x)$
   b. $18 = 2x$

7. $x = 2$
   a. $\frac{12}{x} = 6$
   b. $6x = 12$

8. $x = \frac{10}{3}$
   a. $-1 + 3x = 9$
   b. $9 = 3x - 1$

9. $x = \frac{1}{2}$
   a. $5(x+1) = \frac{15}{2}$
   b. $5x + 1 = \frac{15}{2}$

7.3 Generating Equivalent Equations

1. Your teacher will display an equation. Take turns with your partner to generate an equivalent equation—an equation with the same solution. Generate as many different equations with the same solution as you can. Keep track of each one you find.

2. For each change that you make, explain to your partner how you know that your new equation is equivalent. Ask if your partner agrees with your thinking.

3. For each change that your partner makes, listen carefully to the explanation about why the new equation is equivalent. If you disagree, discuss your thinking and work to reach an agreement.

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