

Strand: Numbers and Operations Name: KEY

Skill Addressed: Cancelling as it relates to Multiplying Fractions Blk:     

Activity: *Simplifying Rational Expressions using Equivalent Fractions*

Write six fractions that are equivalent to 2:

**Possible solutions:**

$$\frac{4}{2} \quad \frac{6}{3} \quad \frac{8}{4} \quad \frac{10}{5} \quad \frac{12}{6} \quad \frac{14}{7}$$

Using one of your fractions as an example, demonstrate the process that you would use to make your fraction simplify back to 2.

**Possible example:**

$$\frac{10}{5} \div 5 = \frac{2}{1} = 2$$

Explain what you did in words: **I divided the numerator and the denominator by the same number (5) to simplify the fraction**

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Now, simplify the following rational expressions using your method:

a)  $\frac{6x}{24a}$   $\div 6 = \frac{x}{4a}$

b)  $\frac{6x+8}{24a}$   $= \frac{2(3x+4) \div 2}{2(12a) \div 2} = \frac{3x+4}{12a}$

Explain how these examples are similar or different from simplifying the fractions you made to equal 2 above. **They are different because they contain variables (x, a). I still divided the numerator and denominator by the same number. For b) it was easier to factor out a 2 to make sure I didn't forget to divide all terms in the equation by 2!**

c) If  $\frac{6x}{3} = \frac{48}{12}$ , solve for x.

$$\frac{6x \div 3}{3 \div 3} = \frac{48 \div 12}{12 \div 12} \quad \text{so } 2x = 4, \text{ so } x = 2$$

Use the same method to solve for x. Explain why using equivalent expressions for each side of the equation works. **Each side can be simplified (reduced) and equivalent fractions can be found. Then it's easy to solve the equation – I didn't need to cross-multiply (but I could have).**