

Name _____

Pre-Algebra Notes
Week 3: Lessons 5.6 and 5.7

Using Multiplicative Inverses to Solve Equations (5.6)

To solve an equation that has a fractional coefficient, you can _____
each side of the equation by the fraction's _____

Multiplicative Inverse Property

$$\frac{3}{5} \cdot \frac{5}{3} =$$

Examples

1. One-Step Equations

$$\frac{4}{7}x = -12$$

2. Two-Step Equation

$$\frac{-11}{15}x + \frac{4}{5} = \frac{1}{3}$$

Extra Practice

3. Real World Application

A stalactite is 10 inches long and is growing at a rate of about $\frac{1}{8}$ inch per decade. How long will it take for the stalactite to reach a length of 1 foot?

Equations and Inequalities with Rational Numbers (5.7)

Steps used to solve equations:

1. “undo” any addition or subtraction to isolate the variable
2. multiply both sides of equation by the multiplicative inverse
(if needed)
3. clear equations with fractions by multiplying each side of the equation by the LCD (least common denominator) of the fractions

Examples

1. Solving Equations by Clearing Fractions

$$\frac{-5}{6}x + \frac{1}{2} = \frac{3}{4}$$

Extra Practice

To clear decimals

Multiply both sides by a power of 10 based on the term with the greatest number of decimal places

2. Solving an Equation by Clearing Decimals

$$2.3 = 5.14 + 0.8m \qquad \text{greatest decimal place-}$$

3. Solving an Inequality with Fractions

A sign in a clothing store says to take $\frac{1}{3}$ off the marked price of a shirt. You have \$20 in cash and a \$5 gift card. What are the original prices of the shirts you can afford to buy?

4. Solving an Inequality by Clearing Fractions

$$\frac{-3}{4}m - \frac{1}{8} \leq \frac{-1}{4}$$

symbols

negative

remember to reverse inequality

when dividing or multiplying by a