EXAMPLE 1: Translate each sentence into an equation

a. Seven times a number squared is five times the difference of \( k \) and \( m \).

b. Fifteen times a number subtracted from 80 is 25.

c. Two plus the quotient of a number and 8 is the same as 16.

d. Twenty-seven times \( k \) is \( h \) squared decreased by 9.

EXAMPLE 2: Translate the sentence into a formula

a. The area of a triangle is equals the product of \( \frac{1}{2} \) the length of the base and the height.

b. The perimeter of a square equals four times the length of a side.

c. The density of an object is the quotient of its mass and its volume.

EXAMPLE 3: Translate each equation into a sentence.

a. \( 6x - 15 = 45 \)

b. \( y^2 + 3x = w \)

c. \( 15 = 25x^2 + 2 \)

TO WRITE AN EQUATION:

1. Identify the unknown (the variable which you are looking to find)
2. Write the sentence as an equation
3. Look for key words such as ___________________________
Solve for equations:
1. Using multiplication and division.
2. Using addition and subtraction.

Solve an Equation

Equivalent Equations

Addition

Subtraction

Multiplication

Division
Solve for equations:
1. Involving more than one operations
2. Involving consecutive integers

**EXAMPLES:**

To solve a multi-step equations, we must
_________________________
_________________________

**EXAMPLES:**

To solve consecutive integer problems we must
_________________________
_________________________

**EXAMPLES:**

What's number theory?
Solve for equations:
1. with variables on each side.
2. involving grouping symbols.

To solve an equation that has variables on both sides, use the addition or subtraction property of equality to write an equivalent equation with the variable on one side.

If equations contain grouping symbols like parentheses or brackets, use the Distributive Property first to remove the grouping symbols.

Or use the multiplication or division properties of equality to remove the grouping symbols. Let’s try both.

EXAMPLES:

Steps for solving any equations:
1. Use the Distributive Property first if there are parentheses. If there is a fraction bar, it may be helpful to multiply the entire equation by a common denominator.
2. Simplify each side of the equation by adding like terms.
3. If there is a variable on both sides of the equations, then get the variable on one side of the equation.
4. Move the constants to the other side of the equation.
5. Divide.

You are trying to isolate the variable.
1. Evaluate expressions with absolute value.
2. Solve equations involving absolute value.

<table>
<thead>
<tr>
<th>What is an absolute value?</th>
<th>Evaluate an Absolute Value Expression</th>
<th>Evaluate an Absolute Value Expression</th>
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**Simple Absolute Value Concepts:**

<table>
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<th>Solution Set Notation</th>
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**Solving Absolute Value Equations**

<table>
<thead>
<tr>
<th>Two Solutions</th>
<th>One Solution</th>
<th>No Solutions</th>
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</thead>
<tbody>
<tr>
<td>Example</td>
<td>Example</td>
<td>Example</td>
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Check your work:

<p>| | |</p>
<table>
<thead>
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<tbody>
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<td>Check your work.</td>
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</table>
Algebra 1 interactive notebook created by Sister Mary Rebekah Odle-Kemp, O.P. for her beloved freshman at Notre Dame High School in Chattanooga, TN. intended for use with Glencoe Series Algebra 1 © 2012.

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