

1-0: Properties of Equality

“I WILL ...

...use Algebra to Identify Properties of Equality.”

I. Properties of Equality (Page 104)

- A. Addition Property of Equality: _____
- B. Subtraction Property of Equality: _____
- C. Multiplication Property of Equality: _____
- D. Division Property of Equality: _____
- E. Reflexive Property of Equality: _____
- F. Symmetric Property of Equality: _____
- G. Transitive Property of Equality: _____
- H. Substitution Property of Equality: _____
- I. Distributive Property of Equality: _____

II. Order of Operations: To evaluate an algebraic expression, substitute a number for each variable and simplify by using the order of operations. One way to remember the order of operations is by using the mnemonic PEMDAS.

- A. Parentheses and grouping symbols.
- B. Exponents.
- C. Multiply and Divide from left to right.
- D. Add and Subtract from left to right.

III. Model Problems

Ex 1: Solve the following, $2(5 - 3)^2 + 3 \cdot 2 - 4$	Ex 2: Evaluate $(x)^2 - (x - 7)^2$ $+ (-x) \div 3$ where $x = -3$	Your Turn: Evaluate $2(x - 5)^2 + x \cdot 2 - 4$ where $x = 3$
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IV. Combining Like Terms

- A. Simplifying is an expression if there are no grouping symbols and all like terms combined.
- B. Like terms are terms that have the same variable parts.
- C. Variable terms have a variable part.

Coefficient is where a term is in front of the variable.

V. Model Problems

<p>Ex 3: Simplify, $7a^2 + 6b - 2a^2 + 3a - 2b$</p>	<p>Ex 4: Simplify $6(x - 2) - 2(x^2 + 6x)$</p>	<p>Your Turn: Simplify $4(x + 9y) - 2x(y + 3)$</p>
<p>Ex 5: Given, $6x + 2 = 4(x - 3)$ and justify steps with appropriate property of equality.</p>	<p>Ex 6: Given, $3x + 12 = 8x - 18$, and justify steps with appropriate property of equality.</p>	
<p>Ex 7: Given, $\frac{2}{(x-3)} = \frac{5}{(x+1)}$ and justify steps with appropriate property of equality.</p>	<p>Your Turn: Given, $\frac{2}{3}(9x+15) = 3x-2$, and justify steps with appropriate property of equality.</p>	