

# Algebra 1

Chapter 1

Section 1-2

## Powers

A power is an expression that includes two parts: the base and the exponent.

Examples:  $3^5$  or  $x^6$

3 to the 5<sup>th</sup> power

$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

$x \cdot x \cdot x \cdot x \cdot x \cdot x$

## Simplifying Powers

$2^5$

$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 32$

$7^2$

$7 \cdot 7 = 49$

$0.4^2$

$0.\underline{4} \cdot 0.\underline{4} = 0.16$

$10^6$

$10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10$   
 $1,000,000$

## Parentheses

$7 - 3 + 2$

$4 + 2$

$6$

$7 - \underline{(3 + 2)}$

$7 - 5$

$2$

## Order of Operations

P arenttheses

E xponents

M ultiply

D ivide

A dd

S ubtraction

## Order of Operations

$$5 - (8 - 6)$$

$$5 - 2$$

$$3$$

$$4 + 7 \cdot 10$$

$$4 + 70$$

$$74$$

## Order of Operations

$2 + 4(9 - 1)$ $2 + 4(8) \text{ or } 2 + 4 \cdot 8$ $2 + 32$ $34$	$3 \cdot 5^2 + 5(3 + 2)$ $3 \cdot 5^2 + 5(5)$ $3 \cdot 25 + 5(5)$ $75 + 25$ $100$
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## Using Substitution to Simplify an Algebraic Expression

*Evaluate the following for  
 $x = 6$  and  $y = 2$*

$\underline{3x} - \underline{9y}$ $3(6) - 9(2)$ $18 - 18$ $\emptyset$	$5x - y^2 - 2xy$ $5(6) - (2)^2 - 2(6)(2)$ $5(6) - 4 - 2(6)(2)$ $30 - 4 - 24$ $26 - 24$ $2$
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Sara's parents taught her that one-half of her allowance money should go into her savings account.

Write an algebraic expression to determine what amount of her allowance she will deposit into savings.

$x \rightarrow$  allowance

$$\frac{x}{2}$$

Sara's parents taught her that one-half of her allowance money should go into her savings account.

How much money will she deposit each month if her allowance is \$35? \$40? \$42?

$$\frac{x}{2}$$

$$\frac{35}{2} = \$17.50$$

$$\frac{42}{2} = \$21$$

$$\frac{40}{2} = \$20$$