Name:_____ Date:_____

Notes
Algebra Section 1.1
Pages 2-7

Goal: "I will evaluate an expression given a value for the variable with exponents"
"I will write an expression to represent a situation"

Vocabulary:

Variable: A variable is a _____ used to represent one or more _____.

Expression: A number sentence consisting of _____, _____, and _____.

What is the difference between an algebraic expression and an algebraic equation?

An algebraic _____ has an _____ sign and an _____ does not.

Expressions

Examples of expressions: _____ _____ _____

Do not use _____ for multiplication anymore.

Do not use _____ for division anymore.

Expression	Meaning	Operation
$3x$	3 _____ the value of x	_____
$\frac{12}{x}$	_____ 12 by the value of x	_____

Evaluating expressions:

1) Write down the expression (ex: 3x+2)
2) Input the values (ex: x=5)
3) Simplify using Order of Operations (PEMDAS)

Example:

Evaluate $3x+5$ for x=10

1) Copy the _____ $3\boldsymbol{x} + 5$
2) Input the _____ $3 \cdot$ ____ $+ 5$
3) Simplify using _____ _____ +5

_____

Try These:

Evaluate the expressions below when n=5

(a) $3 + n$

Input:

Simplify:

(b) $10n$

Input:

Simplify:

(c) $\frac{15}{n}$

Input:

Simplify:

(d) $n - 1$

Input:

Simplify:

Evaluate the expressions below when $y = 2$.

(a) $6y - 3$

Input:

Simplify:

(b) $y + 4$

Input:

Simplify:

(c) $11 - 2y$

Input:

Simplify:

Writing an expression:

Example:

Timmy is going to the movies with his friends. Each movie ticket costs $12. How much will it cost for all of them to see the movie?

What is varying or unknown? _____

Pretend that you were going to the movies with your friends. Describe how you would find the total cost for the tickets. _____

_____

Write an expression for the total cost of the outing. Use a variable for the unknown.

_____

What does the variable stand for? The number of _____

Try These:

Veronica is going to the movies. She is buying a movie ticket for $12 and a box of popcorn. How much will it cost her to go to the movies?

What is varying or unknown? _____

Pretend that you were going to the movies. Describe how you would find the total cost for the ticket and box of popcorn. _____

_____

Write an expression for the total cost of the outing. Use a variable for the unknown.

_____

What does the variable stand for? The cost of _____

Bobby is going to the movies. He buys a box of popcorn with a $20 bill. How much change will he receive?

What is varying or unknown? _____

Pretend that you were going to the movies. Describe how you would find the change for a $20 bill. _____

_____

Write an expression for the total cost of the outing. Use a variable for the unknown.

_____

What does the variable stand for? The cost of _____

Challenge:

Sally is going to the movies with her friends. She is buying one box of popcorn for $9 and movie tickets for each person costing $12 each. Write an expression to show the total amount spent.

What is varying or unknown? _____

Pretend that you were going to the movies with your friends. Describe how you would find the total cost for the outing. _____

_____

Write an expression for the total cost of the outing. Use a variable for the unknown.

_____

What does the variable stand for? The number of _____

Exponents

Power: An expression that represents repeated _____ of the same factor.

In the expression 2^5, what number is the base? _____

Which number is the exponent? _____

Note: $4^0=1$ (Anything to the 0 power=1)

Example: 4^3

Expand ____ · ____ · ____

Simplify ____ · ____

_____

Try These:

(a) 5^3

Expand

Simplify

(b) $(7)^2$

Expand

Simplify

(c) 3^2

Expand

Simplify

(d) 2^4

Expand

Simplify

Challenge:
Input the value first then Simplify.

(a) x^3 $x=4$

(b) k^2 $k = 5$

(c) d^3 $d = 3$