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:** _____

**Expression:** _____

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

_____

_____

**Power:** _____

## <u>Expressions</u>

Examples of expressions: _____     _____     _____

Evaluating expressions:
1) Input the values
2) Simplify using Order of Operations

<u>Example</u>: Evaluate              $3x+5$      for $x=10$

1) Input the values               $3 \cdot \mathbf{10} + 5$

2) Simplify using Order of Operations      $30+5$

                          $35$

<u>Try These:</u>

Evaluate the expressions below when $n=5$

(a)     $13n$                   (b)   $\frac{9}{n}$                  (c)   $n-1$

Evaluate the expressions below when $y = 2$.

(a)     $6y\text{-}3$                 (b)   $y + 4$              (c)   $11 - 2y$

Evaluate the expressions below when $c = 4$.

(a)     $4c+1$                 (b)   $\frac{8}{c}$                 (c)   $(15 + c)\text{-}3$

Writing an expression:

<u>Example:</u>

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? _____

Expression: _____

What does the variable stand for? _____

<u>Try These:</u>

The oven repairman charges $40 for the service call and $25 an hour for the service. Write an expression to show the total cost for the repair.

What is varying or unknown? _____

Expression: _____

What does the variable stand for? _____

## **Exponents**

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

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

<u>Example:</u>           $4^3$

      Expand     $4 \cdot 4 \cdot 4$

      Simplify     $16 \cdot 4$

             64

<u>Try These:</u>

(a)           $5^3$                          (b)     $\left(\frac{1}{3}\right)^4$                          (c)     $1.4^2$

Expand                          Expand                          Expand

Simplify                          Simplify                          Simplify

(a)  $x^3, x = 8$                          (b) $k^2, k = 2.5$                          (c)  $d^4, d = \frac{1}{3}$

Here are some trickier ones:

(a)  $-3^2$                          (b)  $x^2$, when $x = -2$                          (c)  $-x^2$ when $x = 4$