Name: _____

Sec. 1.1: Evaluate Expressions

Variable: letter used to represent one or more _____; those numbers are the _____ of the variable

Expression: combination of _____, _____, and _____

Algebraic (or variable) expression: expression that contains at least one variable

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To evaluate an expression:

- S
- P
- S

Example: Evaluate x + 4 when x = 6:

Substitute 6 for x: x + 4 = 6 + 4

Perform the operation(s): 6 + 4 = 10

Simplify if necessary: not necessary in this example

Examples of Common Operations

Addition: y + 9

Subtraction: z – 5

Multiplication: 3·7 or 3*7 or 3(7); 2·r or 2r

Division: 8 ÷ 2 or 8/2 or $\frac{8}{2}$

Exponents

A power is

Example:

Solution:

In this example,

Examples

Evaluate each expression when x = 4.

1. x + 5

2. x - 3

3. 7x

4. $\frac{x}{2}$

On a certain day you have 30 minutes worth of math homework and 40 minutes worth of science homework to do. Write an expression to show the total amount of homework for that day, and calculate that total amount.

Practice Problems

Evaluate each expression:		
1) r + 2.3 when r = 3.4	2) u - $\frac{3}{4}$ when u = 5	3) 5x when x = 4.3
4) $\frac{y}{4}$ when y = 12.8	5) xy when x = 7 and y = 5	6) $\frac{p}{q}$ when p = 20 and q = 5
Write the power in words and as a product:		
7) 7^4	8) 3^5	9) $(\frac{1}{2})^4$
Evaluate the power:		
10) 2^3	11) 10^4	12) $(\frac{1}{2})^3$
Describe AND correct the error in evaluating the power.		
13) $5^3 = 5 \cdot 3 = 15$		

Practice Problems

Evaluate each expression:

1) $r + 2.3$ when $r = 3.4$

5.7

2) $u - \frac{3}{4}$ when $u = 5$

$4\frac{1}{4}$ or $\frac{17}{4}$

3) $5x$ when $x = 4.3$

21.5

4) $\frac{y}{4}$ when $y = 12.8$

3.2

5) xy when $x = 7$ and $y = 5$

35

6) $\frac{p}{q}$ when $p = 20$ and $q = 5$

4

Write the power in words and as a product:

7) 7^4

seven to the fourth power

$7 \cdot 7 \cdot 7 \cdot 7$

8) 3^5

three to the fifth power

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

9) $(\frac{1}{2})^4$

one-half to the fourth power

$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$

Evaluate the power:

10) 2^3

8

11) 10^4

10,000

12) $(\frac{1}{2})^3$

$\frac{1}{8}$

Describe AND correct the error in evaluating the power.

13) $5^3 = 5 \cdot 3 = 15$

The student multiplied the base times the exponent instead of the base by itself.

$5^3 = 5 \cdot 5 \cdot 5 = 125$