Study Guide

Chapter 1 Test

Answer Key

1.1: Evaluate expressions and powers

- Be able to substitute variables and perform operations including exponents

Ex: Evaluate when $a = 10$, $b = 3$, $x = 2$

$ax - xb^2$

$(10)(2) - (2)(3^2)$

$20 - 18$

$\boxed{2}$

Ex: Evaluate x^3 when $x = 0.7$

$0.7 \cdot 0.7 \cdot 0.7$

$\boxed{0.343}$

1.2: Evaluate order of operations

- Be able to follow PEMDAS in order to solve problems

Ex: $[2 - (3^2 - 8)] + 3[1 + (6 - 2)^2]$

$[2 - (9 - 8)] + 3[1 + (4)^2]$

$[2 - 1] + 3[1 + 16]$

$1 + 3[17]$

$1 + 51$

$\boxed{52}$

Ex: Evaluate when $x = 5$, $y = 3$, $z = 7$

$\frac{xz-y}{x+y}$

$\frac{(5)(7)-3}{5+3}$

$\frac{35-3}{8}$

$\frac{32}{8}$

$\boxed{4}$

1.3 – 1.4: Write expressions, equations and inequalities

- Identify key words to translate verbal phrases into algebraic expressions, equations or inequalities

Ex: 5 less than 6 more than a number *x*

$(6 + x) - 5$

Ex: the quotient of a number *t* and 5 is at least 20

$\frac{t}{5} \geq 20$

Ex: the product of 6 and the sum of *p* and 8 is 42

$6(p + 8) = 42$

-Set up rates and unit rates

Ex: Which is the better buy…a 16-ounce bottle of Gatorade for $1.99 or a 34-ounce jug for $4.05? Explain how you know. (You may use a calculator)

$\frac{\$1.99}{16\text{ oz}} = \frac{\$0.124}{1\text{ oz}}$ $\frac{\$4.05}{34\text{ oz}} = \frac{\$0.119}{1\text{ oz}}$ Since the 16-oz bottle really means about $0.124 per gallon and the 34-ounce bottle really means $0.119 per gallon, then the 34-ounce bottle is slightly cheaper.

1.6 – 1.7: Represent Functions as Tables, Rules and Graphs

- Be able to identify functions, domain and range.
- Write a rule for a function
- Make a table for a function
- Graph a function

Ex: Is the following a pairing a function? If no, say when if yes identify domain and range.

X	*Y*
0	8
5	10
10	8
15	6

Yes, each input has exactly one output. (it doesn't matter that 0 and 10 have the same output…they still each have one)
Domain: 0, 5, 10, 15 Range: 6, 8, 10

Ex: Is the following a pairing a function? If no, say when if yes identify domain and range.

X	0	3	3	6	9
Y	1	7	19	23	6

No, 3 has two different outputs.

Ex: Write a rule for the given function.

X	***Y***
7	21
9	25
11	29
13	33
15	37

$y = 2x + 7$

Ex: Make a table for the given function and then graph.

$y = 3x - 4$ with a domain of 1, 3, 7, 8, 12

x	***y***
1	–1
3	5
7	17
8	20
12	32