

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 $a = 10$, $b = 3$, $x = 2$

$$ax - xb^2$$

$$(10)(2) - (2)(3^2)$$
$$20 - 18$$

2

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

$$0.7 \cdot 0.7 \cdot 0.7$$

0.343

1.2: Evaluate order of operations

- Be able to follow PEMDAS in order to solve problems

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

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

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

$$1 + 3[17]$$

$$1 + 51$$

52

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

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

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

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

$$\frac{32}{8}$$

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