Guided Notes - Evaluating Algebraic Expressions

Learning Target: I can evaluate algebraic expressions

Evaluate an expression

Definition	Facts/Characteristics
Examples	Non-examples

Steps for evaluating expressions:

Example: Evaluate $m(p - q)^2$ for $m = 3$, $p = 7$, and $q = 4$

Step 1: Rewrite the expression leaving blanks or parentheses for variables.

Step 2: Substitute in given numbers for variables.

Step 3: Use the order of operations to simplify.

Examples:

a - 5 - b, a = 10, b = 4

z(x + y) , x = 6, y = 8, z = 6

Name: _____ Hour: _____

Guided Notes - Order of Operations

Learning Target: I can use the order of operations to evaluate expressions

When given a long expression to evaluate, you must use the order of operations in order to get the correct answer.

<table>
<tr><td>P - parentheses and other grouping symbols</td><td rowspan="2">$60 \div (18-15) - 4^2 + 3 \cdot 2$</td></tr>
<tr><td>E - exponents</td></tr>
<tr><td>M - multiply</td><td>D - divide</td></tr>
<tr><td>A - add</td><td>S - subtract</td></tr>
</table>

**** One way to remember this acronym, PEMDAS, is to use a mnemonic device ****

"Please excuse my dear Aunt Sally" **or** "Pudgy elves may demand a snack"

Try these on your own!

$14 + 8 \cdot 2 \div 6 - 7$

$(17-3) \cdot (14-6) - 22$

$5 \cdot 8 + 12 \div 3 + 9$

Kuta Software - Infinite Algebra 1 Name_____

Evaluating Expressions

Date_____ Period____

Evaluate each using the values given.

1) $y \div 2 + x$; use $x = 1$, and $y = 2$

2) $a - 5 - b$; use $a = 10$, and $b = 4$

3) $p^2 + m$; use $m = 1$, and $p = 5$

4) $y + 9 - x$; use $x = 1$, and $y = 3$

5) $m + p \div 5$; use $m = 1$, and $p = 5$

6) $y^2 - x$; use $x = 7$, and $y = 7$

7) $z(x + y)$; use $x = 6$, $y = 8$, and $z = 6$

8) $x + y + y$; use $x = 9$, and $y = 10$

9) $p^3 + 10 + m$; use $m = 9$, and $p = 3$

10) $6q + m - m$; use $m = 8$, and $q = 3$

11) $p^2 m \div 4$; use $m = 4$, and $p = 7$

12) $y - (z + z^2)$; use $y = 10$, and $z = 2$

13) $z - (y \div 3 - 1)$; use $y = 3$, and $z = 7$

14) $(y + x) \div 2 + x$; use $x = 1$, and $y = 1$

15) $p-(9-(m+q))$; use $m=4$, $p=5$, and $q=3$

16) $(a^2-b)\div 6$; use $a=5$, and $b=1$

17) $(6+h^2-j)\div 2$; use $h=6$, and $j=4$

18) $y-(4-x-y\div 2)$; use $x=3$, and $y=2$

19) $x^3\div 3-y$; use $x=3$, and $y=1$

20) $(p+q)^2-(5-5)$; use $p=1$, and $q=1$

21) $12k-h^2$; use $h=2$, and $k=3$

22) $y\div 5+1+x\div 6$; use $x=6$, and $y=5$

23) $6\div 6+z+x-y$; use $x=2$, $y=5$, and $z=6$

24) $y-z+xz\div 6$; use $x=3$, $y=4$, and $z=4$

25) $\frac{y}{2}+x+4+z+y$; use $x=7$, $y=2$, and $z=4$

26) $c\times\frac{bc}{4}-(7-a)$; use $a=4$, $b=8$, and $c=5$

Name: _____ Hour: _____

Evaluating Algebraic Expressions - Word Problem Style

1. The formula for the volume of a cone, $V = \frac{1}{3}\pi r^2 h$ can be used to approximate the volume of a tornado, where r represents the radius, and h represents the height. Find the approximate volume of a tornado with a height of 225 meters, and a radius of 75 meters.

2. A volleyball player's attack percentage A is calculated using the formula $A = \frac{k-e}{t}$, where k represents the number of kills, e represents the number of attack errors including blocks, and t represents the total attacks attempted. Find the attack percentage given each set of values.

a) k = 22, e = 11, t = 35

b) b) k = 33, e = 9, t = 50

3. The formula $C = \frac{5(F-32)}{9}$ can be used to convert temperatures in degrees Fahrenheit to degrees Celsius.

a) Room temperature commonly changes from 64°F to 73°F. Determine the room temperature range in degrees Celsius.

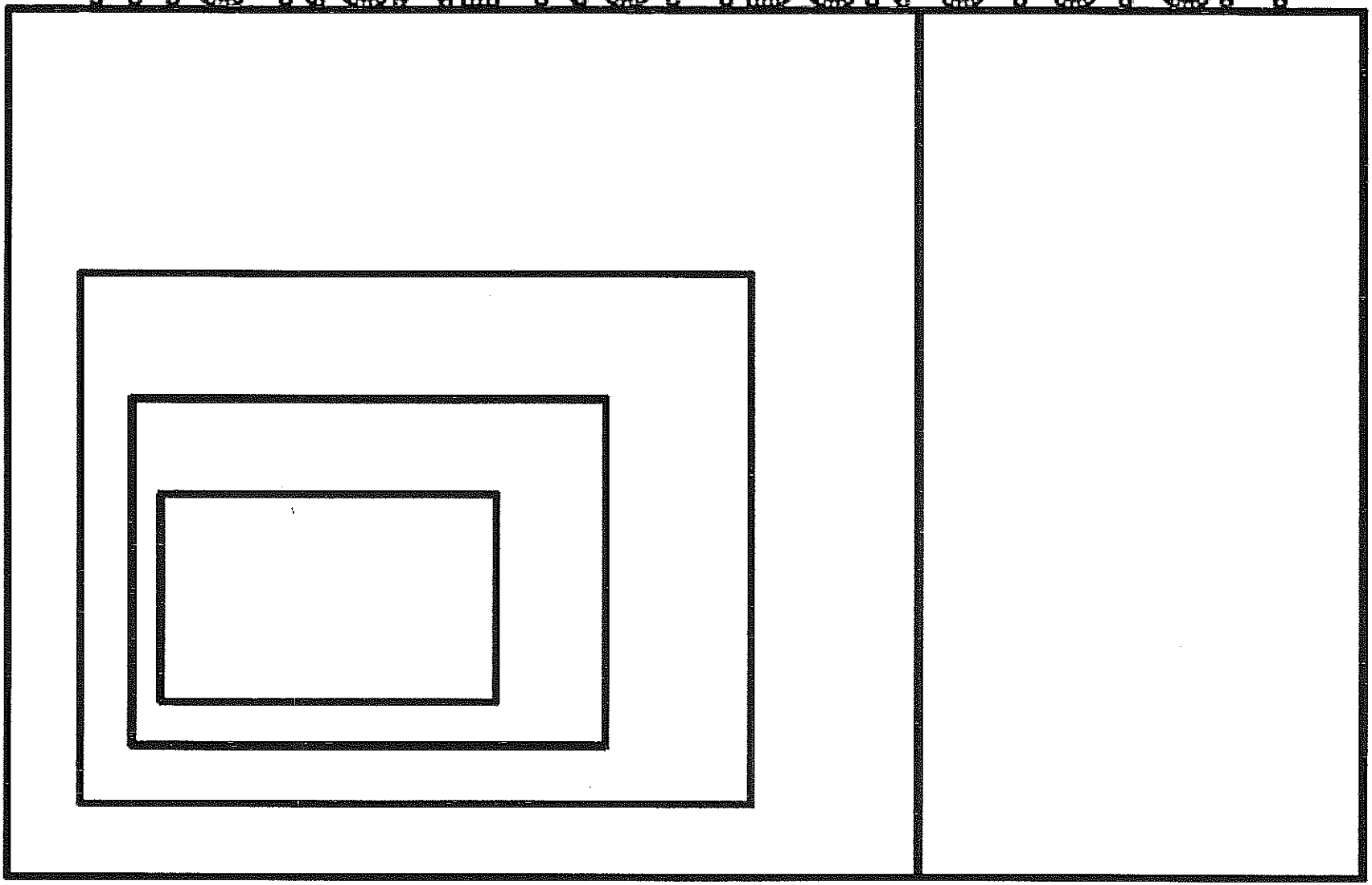
b) The normal average human body temperature is 98.6°F. A temperature above this indicates a fever. If your temperature is 42°C, do you have a fever? Explain your reasoning.

4. A coffee shop owner wants to open a second shop when his daily customer average reaches 800 people. He has calculated the daily customer average in the table below for each month since he has opened.

Month	Daily Customer Average
1	225
2	298
3	371
4	444

If the trend continues, during what month can he open a second shop?

THE REAL NUMBER SYSTEM



Properties of Real Numbers

Let a, b, and c represent real numbers.

Property	Addition	Multiplication
Commutative		
Associative		
Identity		
Inverse		
Distributive		

Name the set (or sets) of numbers to which each number belongs.

1. 5425
2. $\sqrt{7}$
3. 2π
4. 0
5. $\frac{25}{35}$
6. $-\sqrt{16}$
7. -35
8. -31.8

Name the property illustrated by each equation.

15. $5x \cdot (4y + 3x) = 5x \cdot (3x + 4y)$

16. $7x + (9x + 8) = (7x + 9x) + 8$

17. $5(3x + y) = 5(3x + 1y)$

18. $7n + 2n = (7 + 2)n$

19. $3(2x)y = (3 \cdot 2)(xy)$

20. $3x \cdot 2y = 3 \cdot 2 \cdot x \cdot y$

21. $(6 + -6)y = 0y$

22. $14 \cdot 4y = 1y$

23. $5(x + y) = 5x + 5y$

24. $4n + 0 = 4n$

Find the additive inverse and multiplicative inverse for each number.

25. 0.4

26. –1.6

27. -1116

28. 556

Algebra 1
Worksheet 1.1
Classifying Using the Real Number System

Name: _____

Date: _____ Period: ____

Directions: Name ALL the set(s) of numbers to which each number belongs.

Real, Rational, Irrational, Integer, Whole, Natural

1. $\frac{-5}{6}$ _____
2. 35.99 _____
3. 0 _____
4. $4\frac{1}{8}$ _____
5. $\sqrt{5}$ _____
6. -80 _____
7. $\frac{12}{3}$ _____
8. $\sqrt{100}$ _____
9. $-\sqrt{4}$ _____
10. 3.24 _____
11. 3π _____

Name: _____

Date: _____ Period: ____

Is the statement true or false? Circle the correct answer.

12. All integers are rational numbers. True False

13. All negative numbers are integers. True False

14. 3.87655 is a rational number. True False

15. $\sqrt{7}$ is a real number. True False

16. All fractions are integers. True False

Review Questions. Change answer to simplest form.

17. $\frac{2}{3} - \frac{1}{4}$

18. $\frac{1}{4} + \frac{2}{5}$