

Name _____

Unit 1 Test Review

<p>Exponents</p> <p>Represent repeated multiplication</p> $8^3 \begin{array}{l} \text{-----} \text{ exponent} \\ \text{-----} \text{ base} \end{array}$ <p>the exponent tell you to multiply the base by iteself that number of times</p>	<p>Write 8^3 as products and evaluate it.</p> $8 \times 8 \times 8 = 512$ <p>Write $7 \times 7 \times 7 \times 7$ as an exponent.</p> 7^4 <p>$3^n = 81$</p> $\begin{array}{cc} n=2 & n=3 \\ 3 \times 3 = 9 & 9 \times 3 = 81 \end{array} \quad n=3$
<p>Order of Operations</p> <p>P arenthesis E xponents M ultiply D ivide > left to right A dd S ubtract > left to right</p>	<p>Evaluate: $3 \times (3^2 + 4) - (10 + 17) \div 3^2$</p> $\begin{array}{c} 3 \times (9 + 4) - 27 \div 9 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 3 \times 13 - 3 \\ \swarrow \quad \searrow \\ 39 - 3 \\ \swarrow \quad \searrow \\ 36 \end{array}$
<p>Which operation should be in parentheses to make this equation true?</p> $8 \times 3 + 2 + 4 \div 4 = 41$ <p>$(8 \times 3) + 2 + 4 \div 4 = 27$ $8 \times 3 + (2 + 4) \div 4 = 25.5$</p> <p>$8 \times (3 + 2) + 4 \div 4 = 41$ $8 \times 3 + 2 + (4 \div 4) = 27$</p>	
<p>For a class assignment, Curtis and Kason had to evaluate the expression $3(2 + 2)^2 - 3$. Curtis said the answer is 141, and Kason said the answer is 45. Kason is correct. What did Curtis do wrong when he evaluated the expression?</p> <p>He multiplied $3(2+2)$ before performing the exponent on $(2+2)^2$</p>	

Commutative	
Travel	$3 + 4 = 4 + 3$ $3 \times 6 = 6 \times 3$
Associative	
Friends	$3 + (4 + 6) = (3 + 4) + 6$ $3 \times (4 \times 6) = (3 \times 4) \times 6$
Identity (+, -)	
Mirror	$3 + 0 = 3$ $3 - 0 = 3$
Identity (\times , \div)	
Mirror	$3 \times 1 = 3$ $3 \div 1 = 3$
Zero	
Nothing	$3 \times 0 = 0$
Distributive	Demonstrate Property $a(b+c) = ab + ac$
Share	Simplify 3×27 using the distributive property. 3×27 $3(20 + 7)$ $3 \times 20 + 3 \times 7$ $60 + 21$ 81
Wordst hat mean add	Wordst hat mean subtract
more sum give add increase	less difference take away subtract decrease
Wordst hat mean multiply	Wordst hat mean divide
times product by of	quotient dividend divisor groups share
Waysto represent multiplication:	Waysto represent division:
$3 \times a$ $3 * a$ $3(a)$ $3a$	$9 \div a$ $9 / a$ $\frac{9}{a}$ a
Write the expression: the <u>product</u> of a number and 3	
$3n$	
Write the expression that represents the phrase '6 <u>times</u> the <u>quotient</u> of a number <u>divided</u> by 3'?	
$\frac{6a}{3}$ or $6(a \div 3)$	

Olivia started with an unknown amount of M&M s. Her mother gave her 10 more. She then shared 3 with Alyssa and 2 with Jeffrey. Write an expression that shows how many M&M s she had left at the end.

$$k + 10 - 3 - 2$$

Combining Like Terms

combine - put together
like - same
term - product numbers
and variables

$$3a^2 + 4 + 4a - 3 + 3a - a^2$$

$$2a^2 + 7a + 1$$

Monomial

a single term

Example

$$3a, 3a^2, 6$$

Polynomial

multiple monomials added together

Example

$$4a^2 + 5b + 8$$

Variable

a symbol used to represent an unknown number

Coefficient

a number multiplying a variable

Example

$$4a \text{ the coefficient is } 4$$

Term

a number, a variable, or the product of a number and variable

Order the terms

Underline the coefficients

Square the variables

$$\underline{3}x^{\square} + \underline{2}y^{\square} + 3$$

Write an expression with at least 3 terms that shows a difference of terms?

$$7b^2 + 6a - 4 * 6$$

Examine the expression below.

$$7 \cdot 3 + 4z \cdot 2$$

Name the terms that are being used to find a sum.

$$7 * 3 \quad \text{and} \quad 4z * 2$$

Remember the term includes everything that is being multiplied together

What is "substitution" in math?

to put a number in for a variable

Which expression does **not** have a value of 20 when $x = 2$?

a. $20 - x$ $20 - 2 = 18$

b. $x^2 + 16$ $2^2 + 16 = 20$

c. $6x - 4$ $6 * 2 - 4 = 8$

d. $12 + x^3$ $12 + 2^3 = 20$

Evaluate this expression if $x=3$ and $y=2$

$$3x+2(2x^2-4y)$$

$$\begin{aligned} & 3 * 3 + 2(2*3^2 - 4 * 2) \\ & 9 + 2(2 * 9 - 8) \\ & 9 + 2(18 - 8) \\ & 9 + 2(10) \\ & 9 + 20 \\ & 29 \end{aligned}$$

Using complete sentences, explain the order of operations you used in the above expression

First you have to substitute for the variables. Then you begin with the parenthesis. Inside the parenthesis, you first have to do the exponent. You then can multiply and find the difference. After that you can multiply then add the numbers together.

$$\frac{3x}{2y}$$

Evaluate the expression above by substituting 4 for x and 3 for y .

$$\frac{3 * 4}{2 * 3} = \frac{12}{6} = 2$$

Equivalent Expressions

Expressions when simplified
equal the same thing

Write three equivalent expression to
 $6x + 11$

1. $4x + 2x + 11$
2. $6x + 5 + 6$
3. $4x + 2x + 5 + 6$

Look at the 4 expressions below. Three of the expressions are equivalent.

W: $8p - 4 - 1$ $8p - 3$

X: $3 \cdot 2p - 5$ $6p - 5$

Y: $4p - 5 + 2p$ $6p - 5$

Z: $2p + 2p + 2p - 2 - 3$ $6p - 5$

Simplify each expression and tell which is not equivalent to the others.

$8p - 4 - 1$ is not equal to the others

My student studied for the test for at least 30 minutes.

Parent Signature _____ Date _____