Math 60, Section 2.9-2.10 Class Prep Assignment   Name:_____

Section 2.9 Introduction to Exponent Rules

1. Expand each expression to find the answer.

a. $x^3 \cdot x^4$

b. $\left(x^3\right)^4$

c. $\left(2xy^2\right)^3$

The Exponent Rules

$x^m \cdot x^n =$

$\left(x^m\right)^n =$

$\left(xy\right)^m =$

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2. Use the rules to simplify the expressions. You can always expand the exponents if that helps. It's ok to leave large numbers in exponential form.

a. $z^2 \cdot z^8$

b. $\left(2t^5\right)^3$

c. $\left(3^2\right)^6$

d. $w^2 \cdot w^3 \cdot w^4$

Section 2.10 Simplifying Expressions and Algebraic Properties

3. When does the order of two numbers in an operation matter?

   a. $7+6\overset{?}{=}6+7$ b. $2-18\overset{?}{=}18-2$ c. $8\cdot7\overset{?}{=}7\cdot8$ d. $15\div3\overset{?}{=}3\div15$

4. When does the placement of the parentheses matter?

   a. $(7+3)+9\overset{?}{=}7+(3+9)$ b. $(4-6)-10\overset{?}{=}4-(6-10)$

   c. $(6\cdot4)\cdot2\overset{?}{=}6\cdot(4\cdot2)$ d. $(100\div10)\div5\overset{?}{=}100\div(10\div5)$

The Commutative and Associative Properties

	Addition	Multiplication
Commutative Property		
Associative Property		

5. Apply the properties listed. You do not need to simplify further.

   a. Use the commutative property of multiplication to rewrite the expression $5z$.

   b. Use the associative property of multiplication to rewrite the expression $2(3b)$.

<u>The Distributive Property</u>

Can you simplify this expression in two different ways? Do they give the same answer?

$3(6+2)$ $3(6+2)$

$3(6-2)$ $3(6-2)$

We need the distributive property when we have a variable in our expression.

$5(x+7)$ $5(x-7)$ $-5(x-7)$

6. Use the distributive property to rewrite the expressions.

a. $8(y+2)$ b. $4(6-z)$

c. $-\dfrac{1}{4}(x+8)$ d. $-9(t-3)$

7. Use all the properties to simplify the following expressions.

a. $5+4(x-3)$ b. $2(3x-1)+4(2x+9)$

c. $3\left(7-2y+\dfrac{5}{3}x\right)$

Simplifying Expressions with Exponents

$$x(x+4)$$

$$x^2(2x-8)$$

8. Find the product of the monomial and the binomial.

a. $\dfrac{1}{2}x(x+4)$

b. $3x(-2x-9)$

c. $9t^2(t-11)$

d. $5p^2\left(-2p^2-\dfrac{1}{4}p\right)$