Unit A1 Numerical and Algebraic Expressions   Name _____
Unit Review Packet

Directions: Do ALL (A) Questions. Check Your Answers to (A) Questions. If ALL (A) Questions are
          correct, skip (B) Questions and move onto next "I can" statement. If you get any (A)
          Questions wrong, MAKE CORRECTIONS and do ALL (B) Questions.

I Can Identify the Characteristics of an expression, equation and an inequality.

A1. Underline the Expressions. Circle the Equations. Box in the Inequalities.

$$8+4$$

$$x$$

$$\frac{d}{4}=7$$

$$a+3d=12$$

$$9(2x-9)\geq 10$$

$$2+7x>x-9$$

$$54-x<5$$

$$p=18+3$$

$$42$$

A2. Explain the difference between an <u>Algebraic Expression</u> and a <u>Numerical Expression</u>.

B1. Explain the difference between an <u>Expression</u> and an <u>Equation</u>.

I Can Simplify Number Expressions with Exponents.

Write the following using an exponent. Then Evaluate

A1. $6 \cdot 6 + 2 \cdot 2 \cdot 2$ _____   _____

A2. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 - 3 \cdot 3$ _____   _____

Write the following using an exponent. Then Evaluate

B1. $7 \cdot 7 - 3 \cdot 3 \cdot 3$ _____   _____

B2. $3 \cdot 3 + 4 \cdot 4 - 5 \cdot 5$ _____   _____

I Can Apply the Order of Operations to Simplify a Number Sentence.

A1. $26 + 6^2 \div 4$

A2. $32 \div 4\left(5^2 - 21\right)$

B1. $24 - 16 \div 2^3$

B2. $9\left(12 - 6 \div 2\right) \div 3^3$

I Can Substitute Values for Variables in a Number Sentence and Simplify.

A1. To find the area of a trapezoid, Bailey must use the area expression, $\dfrac{h(a+b)}{2}$. If $h = 6$, $a = 8$, and $b = 3$, find the area of the trapezoid.

B1. The amount of money a pharmacist earns in one day can be calculated by using the variable expression, $3x^2 + 5(x + y)$. If $x = 5$ and $y = 9$, find the amount of money the teacher will make.

I Can Translate a Written Mathematical Expression into a Mathematical Symbolic Expression.

A1. Six less than the product of three and a number _____

A2. The quotient of five and a number cubed _____

B1. Fourteen subtracted from a number to the fifth power _____

B2. The quantity x minus 6 divided by 4 _____

I Can Write an Algebraic Expression to Represent a Real-World Situation.

A1. Steven bought posters for $6 per poster. Fill in the table below and write an expression to represent the total cost of p posters.

Posters Bought	Total Cost
4	
7	
p	
	$78

Expression: _____

A2. Jill made 10 fewer cookies than her friend. If her friend made c cookies, write an expression to represent how many cookies Jill made.

Expression: _____

A3. Kiyo bought a pizza for $13 and four medium drinks at Paul's Pizza. If d, represents the cost for a medium drink, write an expression to represent the total amount of money he spent.

Expression: _____

B1. In a card game, the cards were divided amongst the 7 players. Fill in the table below and write an expression to represent the number of c cards each player receives.

Cards in the Deck	Cards Per Player
56	
84	
c	
	15

Expression: _____

B2. Boris has double the amount of toy cars than Jimmy. If Jimmy has t toy cars, write an expression to represent how many toy cars Boris has.

Expression: _____

B3. Mira bought 4 shirts for s dollars each but had a $5 coupon. Write an expression to represent the amount of money Mira will pay at the cash register.

Expression: _____

I Can Identify the Properties of Math and Know which Operations I can apply each Property to.

A1. Jared deposits $2 into his savings account every day for 6 weeks. Using the *Associative Property*, write two equivalent expressions that could be used to find how much money he saved after 6 weeks.

A2. Is $2+7-8$ and $8+7-2$ equivalent? If so, name the property. If not, explain why.

B1. At a gymnastics meet, a gymnast scored an 8.95 on the vault and a 9.2 on the uneven bars. Write two equivalent expressions using the *Commutative Property* that could be used to find her total score.

B2. Is $23+(-23)$ and 0 equivalent? If so, name the property. If not, explain why.

I Can Apply the Distributive Property to Generate an Equivalent Expression.

Simplify

A1. $5(6+7)$

A2. $2(3x+y-9)$

B1. $8(8-3)$

B2. $6(a-8b-2)$

I Can Combine Like Terms to Simplify an Expression.

A1. $5x+4y-3x+5+7x-2y$

A2. $5(a+6b)+9a$

B1. $10+25m-15n+5m+22n-6$

B2. $10x-8+6(x+9)$

I Can Find the Greatest Common Factor and Least Common Multiple of a Set of Numbers
I Can Factor an Expression into a Product of Two Factors that is Equivalent to the First Expression

Find the GCF

A1. 24, 40, and 72

Factor

A2. $36x+20$

A3. Find the LCM of 6 and 8.

Find the GCF

B1.   48 and 84

Factor

B2. $12a - 6b - 60$

B3. Find the LCM of 4 and 9.

I Can Apply the Greatest Common Factor and Least Common Multiple to help Solve Real-World Problems.

A1. Ariana is putting together first-aid kits. She has 64 large bandages and 96 small bandages, and she wants each kit to be identical, with no bandages left over. What is the greatest number of first-aid kits Ariana could put together?

_____ First-Aid Kits

How many large bandages will be in each kit? How many small bandages will be in each kit?

_____ Large Bandages and _____ Small Bandages in each Kit

A2. Bethany found gift bags in packs of 11 and bows in packs of 8. If Bethany wanted to have the same number of gift bags as bows, what is the smallest number of gift bags she would have to buy?

_____ Gift Bags

A3. George goes to gym every 4 days while Beth goes to the gym every 9 days. If they met at the gym today, in how many days will they meet up at the gym next?

_____ Days

A4. A teacher wants to make groups so that there is an equal number of boys in each group and girls in each group. If there are 24 boys and 18 girls, what is the greatest number of groups the teacher can make?

_____ Groups

How many boys will be in each group? How many girls will be in each group?

_____ Boys and _____ Girls in each group

Unit A1: Numerical and Algebraic Expressions ANSWERS

I Can Identify the Characteristics of an expression, equation and an inequality.

A1:

U	U	C
C	B	B
B	C	U

Y   N

A2: Algebraic Expressions contain numbers, operations, and variables. Numerical Expressions only contain numbers and operations. Neither contains equal signs.   Y   N

B1: Expressions do not have equal signs. Equations have equal signs.   Y   N

I Can Simplify Number Expressions with Exponents.

A1: $6^2 + 2^3$ 44   Y   N   **A**2: $2^5 - 3^2$ 23   Y   N

B1: $7^2 - 3^3$ 22   Y   N   **B**2: $3^2 + 4^2 - 5^2$ 0   Y   N

I Can apply the Order of Operations to Simplify a Number Sentence.

A1: 35   Y   N   **A**2: 32   Y   N

B1: 22   Y   N   **B**2: 3   Y   N

I Can Substitute Values for Variables in a Number Sentence and Simplify.

A1: 33   Y   N

B1: $145   Y   N

I Can Translate a Written Mathematical Expression into a Mathematical Symbolic Expression.

A1: $3n - 6$ Y   N   **A**2: $\frac{5}{n^3}$ or $5 \div n^3$ Y   N

B1: $x^5 - 14$ Y   N   **B**2: $\frac{x-6}{4}$ or $(x-6) \div 4$ Y   N

I Can Write an Algebraic Expression to Represent a Real-World Situation.

A1:

Posters Bought	Total Cost
4	$24
7	$42
p	**6p**
13	$78

A2: $c - 10$ Y   N

A3: $13 + 4d$ Y   N

B1:

Cards in the Deck	Cards per Player
56	8
84	12
c	**c ÷ 7**
105	15

B2: $2t$ Y   N

B3: $4s - 5$ Y   N

I Can Identify the Properties of Math and Know which Operations I Can apply each Property to.

$(2 \cdot 7) \cdot 6 = 2 \cdot (7 \cdot 6)$ Y   N

A2: No. You cannot use the Commutative Property with Subtraction in the Expression.   Y   N

$8.95 + 9.2 = 9.2 + 8.95$ Y   N

B2: Yes. Inverse Property of Addition.   Y   N

I Can Apply the Distributive Property to Simplify and Expression.

A1: 65   Y   N   **A2:** $6x + 2y - 18$ Y   N

B1: 40   Y   N   **B2:** $6a - 48b - 12$ Y   N

I Can Combine Like Terms to Simplify an Expression.

A1: $9x + 2y + 5$ Y   N   **A2:** $14a + 30b$ Y   N

B1: $30m + 7n + 4$ Y   N   **B2:** $16x + 46$ Y   N

I Can Find the Greatest Common Factor and Least Common Multiple of a Set of Numbers. I Can Factor an Expression into a Product of Two Factors that is Equivalent to the First Expression.						

A1: 8   Y   N   **B**1: 12   Y   N

A2: $4(9x+5)$ Y   N   **B**2: $6(2a-b-10)$ Y   N

A3: 24   Y   N   **B**3: 36   Y   N

I Can Apply the Greatest Common Factor and Least Common Multiple to help Solve Real-World Problems.						

A1: 32 First-Aid Kits
2 Large and 3 Small   Y   N   **A**2: 88 Gift Bags   Y   N

A3: 36 Days   Y   N   **A**4: 6 groups
4 Boys and 3 Girls   Y   N