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For intervention tips, [click here](#) to head to my blog post,
“6 Tips for Making Math Intervention Work in the Middle Grades.”

DATA TRACKING

PRE AND POST ASSESSMENT TRA

EXPRESSIONS

[illegible]

PROGRESS TRACKING

PROPERTIES OF OPERATIONS

[illegible]

PROGRESS TRACKING

ORDER OF OPERATIONS WITH EXPONENTS

[illegible]

PROGRESS TRACKING

EVALUATING EXPRESSIONS

[illegible]

TRACK STUDENT PROGRESS

PRE + POST ASSESSMENTS

Name: _____ Date: _____

EXPRESSIONS PRE-ASSESSMENT

Directions: Complete each problem. Show your work when needed.

- 1) Identify the property shown.
 $(7 + 12) + 5 = 7 + (12 + 5)$
- 2) Complete the expression using the commutative property.
 $9 \times 14 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$
- 3) Rewrite using the distributive property.
 $4(3x + 8)$
- 4) Complete the equivalent expression.
 $7(2m - 5) = \underline{\hspace{2cm}}$
- 5) Evaluate.
 6^3
- 6) Write the product using an exponent.
 $11 \times 11 \times 11 \times 11$
- 7) Evaluate.
 $18 + 2^4 \times 3$
- 8) Evaluate.
 $72 \div (5 + 3) + 4$
- 9) Simplify.
 $8a + 5a + 6$
- 10) Are the following expressions equivalent? Explain how you know.
 $5(y + 4)$ $5y + 20$
- 11) Write an algebraic expression for "nine less than four times a number."
- 12) A museum charges \$15 for admission and \$6 for each special exhibit visit. Write an expression for the total cost of admission and exhibits if a person visits x exhibits.

Name: _____ Date: _____

EXPRESSIONS ASSESSMENT

Directions: Complete each problem. Show your work when needed.

- 1) Identify the property shown.
 $13 \times 1 = 13$
- 2) Complete the expression using the associative property.
 $(6 \times 8) \times 3 = 6 \times (\underline{\hspace{2cm}} \times \underline{\hspace{2cm}})$
- 3) Rewrite using the distributive property.
 $5(4n + 7)$
- 4) Complete the equivalent expression.
 $6(3b - 8) = 18b - \underline{\hspace{2cm}}$
- 5) Evaluate.
 7^3
- 6) Write the product using an exponent.
 $12 \times 12 \times 12 \times 12 \times 12$
- 7) Evaluate.
 $21 + 3^3 \times 2$
- 8) Evaluate.
 $84 \div (9 + 3) + 5^2$
- 9) Simplify.
 $9r + 4r + 11$
- 10) Are the following expressions equivalent? Explain how you know.
 $4(k + 6)$ $4k + 18$
- 11) Write an algebraic expression for "seven times a number."
- 12) A recreation center charges \$18 to register and \$7 per class. Write an expression for the total cost of registration and c classes.

Expressions (Pre-Assessment)

Directions: Find each answer. Show your work on a separate piece of paper.

* Required

- 1) Choose ALL examples below that represents the associative property of multiplication. * 1 point

$$4 \bullet (6 \bullet 2) = (4 \bullet 6) \bullet 2$$

$$7(3 + 2) = (7 \bullet 3) + (7 \bullet 2)$$

$$5 \bullet 1 = 5$$

☐ C

☐ D

- 4) Simplify using the distributive property. * 1 point

$$8(2 - 2x)$$

Your answer



- 5) Simplify using the order of operations: * 1 point

$$(3 \bullet 2) \div (3 + 4 - (4 - 3))$$

Your answer



- 6) Simplify using the order of operations: * 1 point

$$[13 + 16 - (5 - 4 + 4)] \div 6$$

Your answer



- 7) Choose ALL expressions below that are equivalent to: * 1 point

$$6(2x - 3)$$

PRE/POST
ASSESSMENTS
IN PRINT AND
GOOGLE
FORMS

SKILL REVIEW

PROPERTIES OF OPERATION

Key Concepts:

- Commutative Property:** Changing the order of the numbers does not change the sum or product.
 - $4 + 7 = 7 + 4$
- Associative Property:** Changing the grouping of the numbers does not change the sum or product.
 - $(3 + 6) + 2 = 3 + (6 + 2)$
- Identity Property:** Adding 0 or multiplying by 1 does not change a number.
 - $9 + 0 = 9$
 - $9 \times 1 = 9$

How I feel about this concept:

- ☐ I Completely Get It ☐ I'm Struggling
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

For #1 – 3: Identify the property.

- 1) $14 + 9 = 9 + 14$ 2) $6 \times 1 = 6$ 3) $(5 + 8) + 12 = 5 + (8 + 12)$

For #4 – 6: Complete each expression.

- 4) Use the commutative property.
 $7 \times 13 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

5) Use the associative property.

SKILL REVIEW

EQUIVALENT EXPRESSIONS

Key Concepts:

- Equivalent expressions have the same value for every value of the variable.
- You can write equivalent expressions by:
 - ✓ Combining like terms: $3x + 5x = 8x$
 - ✓ Using the distributive property:
 $4(y + 2) = 4y + 8$
 - ✓ Reordering terms: $6 + a = a + 6$
- Like terms have the same variable raised to the same power.

How I feel about this concept:

- ☐ I Completely Get It ☐ I'm Struggling
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

Directions: Rewrite each expression as an equivalent expression or answer the question.

- 1) Simplify: $7x + 2x$ 2) Simplify: $9m + 4 + 3m$ 3) Use the distributive property to re-write $5(a + 6)$
- 4) Which expression is equivalent to $8y + 3y + 2$?
 a) $11y + 2$ 5) Are $6n + 4$ and $10n$ equivalent? Explain. 6) Complete the equivalent expression:
 $12p + 5p = \underline{\hspace{1cm}} p$

SKILL REVIEW

THE DISTRIBUTIVE PROPERTY

Key Concepts:

The Distributive Property:

Simplifying an expression by multiplying a number by each term inside parentheses.

- Multiply the outside factor by every term inside.
- Keep the addition or subtraction sign.

• Example:

$$\begin{array}{l}
 3(2x + 5) \\
 (3 \times 2x) + (3 \times 5) \\
 6x + 15
 \end{array}$$

How I feel about this concept:

- ☐ I Completely Get It ☐ I'm Struggling
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

Directions: Simplify each expression.

- 1) $4(x + 3)$ 3) $7(2y + 4)$
- 4) $2(3z - 5)$ 6) $8(3p - 5)$

SKILL REVIEW

EVALUATING EXPRESSIONS

Key Concepts:

Evaluating an expression means finding its value when you know the value of the variable.

- Replace each variable with its given value.
- Follow the order of operations.
- Simplify to find the answer.

Example: Evaluate $3x + 7$ when $x = 4$

$$3(4) + 7 = 12 + 7 = 19$$

How I feel about this concept:

- ☐ I Completely Get It ☐ I'm Struggling
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

Directions: Evaluate each expression using the given value.

- 1) $a + 17$ when $a = 9$ 2) $6b$ when $b = 7$ 3) $m - 14$ when $m = 32$
- 4) $\frac{48}{p}$ when $p = 6$ 5) $5n + 8$ when $n = 3$ 6) $2(x + 11)$ when $x = 5$

GUIDED
PRACTICE
AND
STUDENT
RESPONSE

EXTRA PRACTICE

EXTRA PRACTICE

WHOLE NUMBER EXPONENTS

WRITING EXPRESSIONS

For #1 – 5: Find the value of each expression.

- 1) 8^2 2) 4^3 3) 2^6

- 4) 11^2 5) 5^3

For #6 – 8: Rewrite each product using exponents.

- 6) $9 \times 9 \times 9 \times 9$ 7) $6 \times 6 \times 6$ 8) 12×12

- 9) Which expression represents 3^5 ? 10) Evaluate $7^2 + 2^4$.

- A. 3×5
B. $3 + 3 + 3 + 3 + 3$
C. $3 \times 3 \times 3 \times 3 \times 3$
D. $5 \times 5 \times 5$

For #1 – 6: Write an algebraic expression for each phrase.

- 1) Seven more than a number. 2) The product of 11 and a number. 3) A number decreased by 18.
4) The quotient of 48 and a number. 5) Five less than four times a number. 6) The sum of a number and 12, divided by 3.

For #7 – 10: Write an expression to represent each situation. Define your variable.

- 7) A movie ticket costs \$13. Write an expression for the cost of buying several tickets. 8) A runner completes 4 miles each day. Write an expression for the total miles run after several days.
9) A school has 125 chairs. Some are moved to another room. Write an expression for the number of chairs remaining. 10) A babysitter earns \$16 per hour plus a one-time \$10 bonus. Write an expression for the total amount earned.

EXTRA PRACTICE

THE DISTRIBUTIVE PROPERTY

- 11) Which phrase matches the expression $7x - 3$?
A. Seven times a number minus seven

- 12) A student writes $9 + p$ to represent "nine times a number." Explain the mistake and write the correct expression.

For #1 – 6: Use the distributive property to rewrite each expression.

- 1) $9(x + 3)$ 2) $4(6r + 7)$

- 3) $3(8 - 2n)$ 4) $7(5c - 4)$

- 5) $6(2r + 9)$ 6) $5(11 - 3t)$

For #7 – 10: Fill in the blank so the expressions are equivalent.

- 7) $8(y + 4) = 8y + \underline{\hspace{1cm}}$ 8) $7(a - 6) = \underline{\hspace{1cm}} - 18$

- 9) $3(2p - 5) = 6p - \underline{\hspace{1cm}}$

- 10) A rectangle has a width of 6 units and a length of $x + 9$ units. Write an expression for the perimeter without parentheses.

EXTRA PRACTICE

ORDER OF OPERATIONS WITH EXPONENTS

Directions: Evaluate each expression. Show your work.

- 1) $4^3 + 11$ 2) $9 \times 3^2 - 14$

- 3) $72 \div (5 + 4) + 6$ 4) $2^5 - 18 \div 3$

- 5) $7(12 - 2^3)$ 6) $60 - 6 \times (3 + 5)$

- 7) $45 \div 5 \times 2^2$ 8) $8 + 24 \div 3 \times 2$

- 9) Which operation should be completed first?
 $27 - 3 \times (6 + 5)^2$
A. Subtract $27 - 3$
B. Multiply 3×6
C. Add $6 + 5$
D. Evaluate the exponent.

- 10) Which operation should be completed next after evaluating the exponent?
 $50 - 4 \times 2^3$
A. Subtract
B. Multiply
C. Divide
D. Add

- 11) Place parentheses in the expression below to make the value equal 40.

$$16 + 4 \times 2$$

- 12) Two students evaluate the same expression. Which student is correct? Explain why.

Student A: $20 - 12 \div 4 = 2$
Student B: $20 - 12 \div 4 = 17$

**BASIC
PRACTICE
FOR EACH
SKILL**

ERROR ANALYSIS

PROPERTIES OF OPERATIO

Directions: Identify and correct each error.

- 1) Identify the property shown.
 $19 + 7 = 7 + 19$
Associative Property
- 2) Rewrite 8×12 using the commutative property.
 $8 \times 12 = 12 \times 9$
- 3) Complete the expression.
 $47 \times 0 = \underline{47}$
- 4) Rewrite $(6 + 11) + 9$ using the associative property.
 $(6 + 11) + 9 = (11 + 6) + 9$
- 5) Give an example of the commutative property.
 $32 - 14 = 14 - 32$
- 6) Rewrite $(5 \times 7) \times 4$ using the associative property.
 $(5 \times 7) \times 4 = 5 \times (7 + 4)$

ERROR ANALYSIS

EQUIVALENT EXPRESSIONS

Directions: Each student made a mistake when rewriting an expression. Identify the error and write the correct equivalent expression.

- 1) $8x + 5 = 13x$
- 2) $6a + 4a = 10a^2$
- 3) $3(7y + 2) = 21y + 2$
- 4) $12m - 5m = 17m$
- 5) $4p + 9 + 6 = 19p$
- 6) $7b + 3c = 10bc$

ERROR ANALYSIS

EVALUATING EXPRESSIONS

Directions: Each student made a mistake when evaluating an expression. Identify the error and find the correct value.

- 1) Evaluate $8x + 3$ when $x = 6$
 $8 + 6 + 3 = 17$
- 2) Evaluate $5a - 7$ when $a = 9$
 $5(7) - 7 = 35 - 7 = 28$
- 3) Evaluate $4m + 12$ when $m = 5$
 $4(5 + 12) = 4(17) = 68$
- 4) Evaluate $2n^3$ when $n = 4$
 $2(4 \times 3) = 2(12) = 24$
- 5) Evaluate $3(p + 8)$ when $p = 2$
 $3(2 + 8) = 3(10) = 30$
- 6) Evaluate $x^2 + 3x$ when $x = 6$
 $6^2 + 3x = 36 + 3 = 39$
- 7) Evaluate $\frac{y+10}{5}$ when $y = 15$
 $15 + \frac{10}{5} = 15 + 2 = 17$

- student says $4(x + 3) = 4x + 3$ because they multiplied the 4 and x .
- 8) A student says the following expressions are equivalent:
 $6(x + 4)$ and $6x + 10$

ERROR ANALYSIS

ORDER OF OPERATIONS WITH EXPONENTS

Directions: Each student made a mistake when evaluating an expression. Identify the error and find the correct answer.

- 1) $6 \times 3^2 = 18^2 = 324$
- 2) $5(7 + 4) = 35 + 4 = 39$
- 3) $14 + 8 \times 3 = 22 \times 3 = 66$
- 4) $42 - 18 \div 6 = 24 \div 6 = 4$
- 5) $64 \div 8 \times 2 = 64 \div 16 = 4$
- 6) $2(3^3 + 1) = 2(9 + 1) = 20$
- 7) $4(15 - 9) = 60 - 9 = 51$
- 8) $30 - 12 + 5 = 30 - 17 = 13$

