TEACHER KEY · LESSON WORKSHEET · GRADE 6 · 6.AF.1-6.AF.4 · 6.NS.7

Expressions & One-Step Equations

Fill in each part when its number appears on the slide.

PART 1 · TARGET

I can write and evaluate expressions and solve one-step equations using inverse operations.

PART 2 · WARM-UP

1. Evaluate: 3 + 4 × 2.
   Key: 11 (multiply first).
2. A number plus 7 equals 15. What is the number? How did you figure it out?
   Key: 8. I subtracted 7 from 15.
3. Write a word phrase for n + 5.
   Key: Examples: 5 more than a number; a number increased by 5.

PART 3 · PREDICTION

I multiplied a number by 4 and got 36. What was my number?

Circle one: [ ] 8 [ ] 9 [ ] 32

PART 4 · VOCABULARY

Word	Meaning
Variable	A letter that stands for an unknown number.
Expression	Numbers, variables, and operations with no equal sign (3x + 2).
Equation	A statement that two expressions are equal (3x + 2 = 11).
Coefficient	The number multiplied by a variable (the 3 in 3x).

PART 5 · WORDS TO EXPRESSIONS

"3 LESS THAN N" is written n - 3, not 3 - n.

Check: Which expression means "4 less than a number"?

Circle one: (A) n + 4 (B) n - 4 (C) 4 - n (D) 4n

Key: (B) n - 4. Start with n, then take away 4.

PART 6 · EVALUATE

To EVALUATE, substitute the value and follow the ORDER OF OPERATIONS.

Check: Evaluate 4(x - 2) when x = 7.

Answer: _____

Key: 20. 4 × 5 = 20.

PART 7 · EQUIVALENT EXPRESSIONS

Combine LIKE TERMS. The DISTRIBUTIVE property: $3(x + 2) = 3x + 6$.

Check: Which is equivalent to $2(x + 5)$?

Circle one: (A) $7x$ (B) $2x + 10$ (C) $2x + 5$ (D) $x + 10$

Key: (B) $2x + 10$. Multiply both terms by 2.

PART 8 · SOLVE WITH BALANCE

Use INVERSE OPERATIONS and do the same to BOTH SIDES.

Check: Solve: $x + 4 = 10$

Answer: _____

Key: 6. Subtract 4 from both sides.

PART 9 · WORKED EXAMPLE

1. Problem: $x + 7 = 15$.
2. Step 1: x has 7 added to it.
3. Step 2: Undo +7 by subtracting 7 from BOTH sides: $x + 7 - 7 = 15 - 7$.
4. Step 3: $x = 8$.
5. Check: $8 + 7 = 15$ (correct)

PART 10 · WE DO

Solve and check: $5x = 45$.

Answer: $x = 9$

PART 11 · YOU DO

Solve: $y \div 6 = 7$

Answer: _____

Key: 42. Multiply both sides by 6: $y = 42$.

PART 12 · WORK TIME: THE ALGEBRA VAULT

Write each code piece as you earn it: Lock 1: S Lock 2: O Lock 3: L Lock 4: V Lock 5: E

Final code: SOLVE

PART 13 · WRAP-UP

Was your prediction in Part 3 right? One thing I learned today:

Key: Examples: 5 more than a number; a number increased by 5.