Name_____ Date_____ Period_____

LESSON 6-6 · SESSION 2 · PRACTICE · FORM A

Testing and Justifying Equivalence

Learning target – I can test whether two expressions are equivalent by substituting values and by reasoning. · 6.EE.A.4

REMEMBER

- Equivalent expressions have the **same value for every** value of the variable.
- **Test** with the same value in both. One value with different results proves they are **not** equivalent.
- Matching values do not prove it. **Justify** with properties, like the Distributive Property.

WORKED EXAMPLE

Are $4(n + 3)$ and $4n + 12$ equivalent?

Step 1 Test $n = 2$: $4(2 + 3) = 20$ and $4 \times 2 + 12 = 20$.

Step 2 One match is not proof, so use a property.

Step 3 Distributive Property: $4(n + 3) = 4n + 4 \times 3 = 4n + 12$.

Answer **Yes, equivalent**

WORDS **equivalent expressions** *(expresiones equivalentes)* · **counterexample** *(contraejemplo)* · **Distributive Property** *(propiedad distributiva)* · **Commutative Property** *(propiedad conmutativa)*

PRACTICE

show your work · label units

1. Evaluate each expression when $y = 9$. Which two might be equivalent?

a. $2(y + 7) =$ ___ **b.** $2y + 14 =$ ___ **c.** $2y + 7 =$ ___

2. **Ticket Formulas.** Booth A uses $6t + 5 + 2t$ for the cost of t tickets. Booth B uses $8t + 5$.

a. Substitute $t = 3$. A: ___ B: ___

b. Substitute $t = 10$. A: ___ B: ___

c. Are they equivalent? How do you know for every t? _____

d. Which property lets you reorder $6t + 5 + 2t$? _____

3. **One Test Is Enough.** Compare $3(k + 2)$ and $3k + 2$ using $k = 4$. Are they equivalent?

Hint *Do the parentheses first in $3(k + 2)$.*

Show your work.

Equivalent?_____

4. **Properties.** Look at $2 + (m + 11)$ and $(2 + m) + 11$.

Hint *Only the grouping changed.*

a. Which property is shown?

_____

b. Test both with $m = 6$. _____

5. **Nia's Claim.** Nia says $6 + 5j$ and $11j$ are equivalent because $6 + 5 = 11$. Test $j = 2$ to justify or correct her claim.

Hint *Substitute 2 into both expressions.*

Show your work.

Values_____

6. **Two Test Values.** Compare $9v + 6$ and $3(3v + 2)$ using $v = 1$ and then $v = 7$. Are they equivalent?

Hint *Matching values support it; a property proves it.*

Show your work.

Values_____

7. **Kenji's Claim.** Kenji says $12m - 4m$ and 8 are equivalent because $12 - 4 = 8$. Test $m = 5$ to justify or correct his claim.

Hint *Subtracting coefficients leaves a term that still has m.*

Show your work.

Values_____

8. **Three Expressions.** Use $3(k + 4)$, $3k + 12$ and $3k + 4$.

a. Evaluate all three when $k = 2$. _____

b. Which two are equivalent? _____

c. Justify with a property, not a test value. _____

FIND THE ERROR

explain the mistake, then fix it

9. **Dmitri's Work.** Dmitri tested $4p + 6$ and $10p$ using $p = 1$. Both gave 10, so he said they are always equivalent. Explain his mistake. Test $p = 2$.

_____

_____

_____

TEST PRACTICE

choose the best answer

10. $2(x + 5)$ is equivalent to –

A $2x + 5$ **B** $2x + 10$ **C** $x + 10$ **D** $7x$

11. If two expressions give different values for one input, they are –

A equivalent **B** not equivalent

C sometimes equivalent **D** like terms

SELF-CHECK CODE *find your answer · copy its letter into that problem's box · spell a math word*

65	25	40	20	18	19	16	85	29	69
Q	P	Y	Z	P	E	R	O	R	T

#1c	#2a	#2b	#3	#4b	#5	#6	#7

CHECK YOURSELF	☐ I can do this on my own	☐ I need a little help	☐ I have a question about #___