

18. Equivalent Expressions

What are Equivalent Expressions?

Equivalent Expressions: Two expressions that are identical when expanded using properties of operations

Key Property: Distributive Property $a(b+c) = ab + ac$

Commutative Property $a+b=b+a$ | **Associative Property** $(a+b)+c=a+(b+c)$

a)

Example: Expand and Determine Equivalence

$$3(x + 2) = 3x + 3 \times 2 = 3x + 6 \rightarrow \text{Equivalent } \checkmark$$

$$2(x + 3) = 2x + 6 \neq 2x + 3 \rightarrow \text{Not Equivalent } \times$$

b)

Expand and determine if equivalent (fill $\checkmark$ or $\times$)

$$4(x + 1) \quad 4x + 4 \quad \square$$

$$2(x + 3) \quad 2x + 3 \quad \square$$

$$5(2 + x) \quad 10 + 5x \quad \square$$

c)

Expand the following expressions

$$3(x + 5) = \square$$

$$2(4 + y) = \square$$

$$6(n - 2) = \square$$

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d)

Combine Like Terms

$$3x + 2x = \boxed{}$$

$$5y + y - 2y = \boxed{}$$

$$4n + 3 + 2n + 1 = \boxed{}$$

e)

Expand and determine equivalence

$$2x + 3x \quad 5x \quad \boxed{}$$

$$4y - y \quad 3 \quad \boxed{}$$

$$3(n + 2) \quad 3n + 6 \quad \boxed{}$$

f)

Write an equivalent expression for each

$$2x + 4x = \boxed{}$$

$$3(x + 1) = \boxed{}$$

$$5 + 2y + 1 + 3y = \boxed{}$$