

Expression Switch Lab

Use operation properties to rewrite expressions.

GRADE 6 • TEKS 6.7.D

6.7.D "generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties."

NAME _____

DATE _____

PROPERTIES BUILD EQUIVALENTS

Equivalent expressions have the same value, even when they look different. You can switch order, change grouping, use 0 or 1, cancel opposites, or multiply across parentheses to rewrite an expression.

WORKED EXAMPLE

Rewrite $9(4 + 6)$ using the distributive property.

1. Start with $9(4 + 6)$.
2. Multiply 9 by each term: $9 \times 4 + 9 \times 6$.
3. Multiply: $36 + 54 = 90$.

Answer: $9(4 + 6) = 36 + 54 = 90$

PRACTICE 6 problems

- 1** Rewrite as an equivalent expression: $n + 15 + (-15)$

ANSWER _____

- 2** Rewrite as an equivalent expression: $1 \times r$

ANSWER _____

- 3** Use the commutative property to rewrite: $12 + p$

ANSWER _____

- 4** Use the associative property to regroup: $(a + 7) + 3$

ANSWER _____

- 5** Use the distributive property to expand: $3(m + 5)$

ANSWER _____

- 6** Use the distributive property to factor: $22 - 2k$

ANSWER _____

APPLY IT Show your work

- 1** At an esports club, each of 5 prize bags has s game tokens and 7 snack tickets. Write an equivalent expression for the total number of items in all 5 bags.

WORK SPACE

ANSWER _____

- 2** A gaming club prints 2 identical team posters. Each poster costs p dollars for printing and 5 dollars for lamination. Write an equivalent expression for the total cost.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Without choosing a value for x , explain why $5(2x + 3) + x$ and $11x + 15$ are equivalent. Show each rewrite.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Rewrite as an equivalent expression: $n + 15 + (-15)$	n
2	Rewrite as an equivalent expression: $1 \times r$	r
3	Use the commutative property to rewrite: $12 + p$	p + 12
4	Use the associative property to regroup: $(a + 7) + 3$	a + (7 + 3)
5	Use the distributive property to expand: $3(m + 5)$	3m + 15
6	Use the distributive property to factor: $22 - 2k$	2(11 - k)

PART 2 • APPLY IT

1. **5s + 35** Start with $5(s + 7)$. Distribute 5 to both terms to get $5s + 35$.
2. **2p + 10** Start with $2(p + 5)$. Distribute 2 to get $2p + 10$.

CHALLENGE

Distribute 5: $5(2x + 3) + x = 10x + 15 + x$. **Combine like terms:** $10x + x + 15 = 11x + 15$.

Accept any algebraically equivalent form. For the regrouping item, accept $a + 10$ as well as $a + (7 + 3)$.