LESSON MAKER PRO

Expression Switch Lab

Use operation properties to rewrite expressions.

GRADE 6 · 6.PAR.6.5

6.PAR.6.5 "Apply the properties of operations to identify and generate equivalent expressions."

NAME _____ DATE _____

MOVE, GROUP, AND DISTRIBUTE

The distributive property lets you multiply a factor by every term inside parentheses. You can also reverse the process by factoring out a common factor. The commutative and associative properties let you reorder or regroup terms without changing the value.

WORKED EXAMPLE

Write an equivalent expression for $7(x + 13)$.

1. Start with $7(x + 13)$.
2. Multiply 7 by x to get $7x$.
3. Multiply 7 by 13 to get 91.
4. Write $7x + 91$.

Answer: 7x + 91

PRACTICE 6 problems

1 Write an equivalent expression for $4(x + 6)$.

ANSWER _____

2 Write $9x + 45$ as a product by factoring out the greatest common factor.

ANSWER _____

3 Use the commutative property to write an equivalent expression for $12 + 5x$.

ANSWER _____

4 Simplify: $2(3x + 8) + x$

ANSWER _____

5 Simplify: $6(x + 4) + 2x$

ANSWER _____

6 Write $15x - 20$ as a product by factoring out the greatest common factor.

ANSWER _____

APPLY IT Show your work

1 A game creator makes 8 prize bags. Each bag has x trading cards and 3 stickers. Write two equivalent expressions for the total number of items in all the bags.

WORK SPACE

ANSWER _____

2 A robotics team has 18x connector pieces and 30 sensors. They want to pack the supplies into 6 identical kits. Write the total number of supplies as a factored expression that shows 6 equal kits.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Are 4(2x + 9) + 3x and 11x + 36 equivalent expressions? Explain your reasoning.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Switch Lab

GRADE 6 · 6.PAR.6.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write an equivalent expression for 4(x + 6).	**4x + 24**
2	Write 9x + 45 as a product by factoring out the greatest common factor.	**9(x + 5)**
3	Use the commutative property to write an equivalent expression for 12 + 5x.	**5x + 12**
4	Simplify: 2(3x + 8) + x	**7x + 16**
5	Simplify: 6(x + 4) + 2x	**8x + 24**
6	Write 15x - 20 as a product by factoring out the greatest common factor.	**5(3x - 4)**

PART 2 · APPLY IT

1. **8(x + 3) and 8x + 24** There are 8 groups of x + 3 items, so the total is 8(x + 3). Distribute 8 to get 8x + 24.
2. **6(3x + 5)** Factor 6 from both terms: 18x + 30 = 6(3x + 5). Each kit has 3x + 5 supplies.

CHALLENGE

Yes. Distributing gives 8x + 36 + 3x, which simplifies to 11x + 36.

Accept equivalent expressions with terms written in a different order. For items that ask students to factor, the expression must show the requested greatest common factor.