LESSON MAKER PRO

Expression Switch

Use properties of operations to write equivalent expressions.

GRADE 6 · 6.AT.B.7

6.AT.B.7 "Apply the properties of operations (e.g., distributive, associative, commutative, etc.) to generate equivalent algebraic expressions and to identify when two expressions are equivalent (e.g...."

NAME _____ DATE _____

SAME VALUE, NEW FORM

Equivalent expressions have the same value for every value of x. The distributive property lets you multiply a number by each term inside parentheses. You can also reverse this process to factor a sum.

WORKED EXAMPLE

Rewrite 7(8 + x) without parentheses.

1. Multiply 7 by each term: 7 × 8 + 7 × x.
2. Simplify: 56 + 7x.

Answer: 56 + 7x

PRACTICE 6 problems

1 Rewrite 4(x + 9) without parentheses.

ANSWER _____

2 Rewrite 3(2x + 5) without parentheses.

ANSWER _____

3 Factor 12x + 18 using the greatest common factor.

ANSWER _____

4 Write x + x + x + x + x as one term.

ANSWER _____

5 Are 5(x + 4) and 5x + 4 equivalent? Explain briefly.

ANSWER _____

6 Simplify 2(3x + 4) + x.

ANSWER _____

APPLY IT Show your work

1 At a school event, each of 6 teams gets x blue wristbands and 5 red wristbands. Write two equivalent expressions for the total number of wristbands.

WORK SPACE

ANSWER _____

2 An online shop charges $12 for each custom badge and a $9 shipping fee. You buy x badges. Write the total cost as a sum, then factor the sum using the greatest common factor.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student claims $3(2x + 5) + 4(x + 6) = 10x + 21$. Is the claim correct? Write the correct simplified expression and explain the error.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Switch

GRADE 6 · 6.AT.B.7

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Rewrite 4(x + 9) without parentheses.	**4x + 36**
2	Rewrite 3(2x + 5) without parentheses.	**6x + 15**
3	Factor 12x + 18 using the greatest common factor.	**6(2x + 3)**
4	Write x + x + x + x + x as one term.	**5x**
5	Are 5(x + 4) and 5x + 4 equivalent? Explain briefly.	**No. 5(x + 4) equals 5x + 20, not 5x + 4.**
6	Simplify 2(3x + 4) + x.	**7x + 8**

PART 2 · APPLY IT

1. **6(x + 5) and 6x + 30** Each team gets x + 5 wristbands. Multiply by 6 teams, then distribute the 6.
2. **12x + 9 and 3(4x + 3)** The badges cost $12x, and shipping adds $9. Factor 3 from both terms.

CHALLENGE

No. 3(2x + 5) + 4(x + 6) = 6x + 15 + 4x + 24 = 10x + 39. The student did not multiply 6 by 4.

Accept equivalent terms in a different order. For the challenge, accept any explanation that identifies the missed multiplication of 4 × 6.