LESSON MAKER PRO

Expression Matchmakers

Distribute, simplify, and check expressions.

GRADE 6 · MT.6.EE.3

MT.6.EE.3 "Apply the properties of operations including the distributive property, to generate equivalent expressions and determine when two expressions are equivalent."

NAME _____ DATE _____

THE BIG IDEA

Multiply the number outside parentheses by each term inside. Then combine like terms, which have the same variable part. Two expressions are equivalent if they have the same value for every value of x.

WORKED EXAMPLE

Write 7(3x + 8) without parentheses.

1. Multiply 7 by 3x: 7 × 3x = 21x.
2. Multiply 7 by 8: 7 × 8 = 56.
3. Add the results: 21x + 56.

Answer: 21x + 56

PRACTICE 6 problems

1 Write 4(x + 6) without parentheses.

ANSWER _____

2 Write 9(2x + 1) without parentheses.

ANSWER _____

3 Simplify 5(x + 10) + 2x.

ANSWER _____

4 Write 6(2x - 4) without parentheses.

ANSWER _____

5 Are 12(x + 5) and 12x + 60 equivalent? Write yes or no and show one step.

ANSWER _____

_____

6 Are 2(6x + 9) and 12x + 11 equivalent? Write yes or no and show one step.

ANSWER _____

_____

APPLY IT Show your work

1 At an arcade, each player buys a $10 game card and $6 in snacks. If x players each buy both, write two equivalent expressions for the total cost.

WORK SPACE

ANSWER _____

2 An esports club has x players and 2 coaches. Each person gets 5 stickers and 6 pins. Write an expression with parentheses for the total number of items, then simplify it.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A club claims that 6(2x + 5) - 4x and 8(x + 4) are equivalent. Simplify both expressions and explain whether the claim is correct.

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write 4(x + 6) without parentheses.	**4x + 24**
2	Write 9(2x + 1) without parentheses.	**18x + 9**
3	Simplify 5(x + 10) + 2x.	**7x + 50**
4	Write 6(2x - 4) without parentheses.	**12x - 24**
5	Are 12(x + 5) and 12x + 60 equivalent? Write yes or no and show one step.	**Yes. 12(x + 5) = 12x + 60.**
6	Are 2(6x + 9) and 12x + 11 equivalent? Write yes or no and show one step.	**No. 2(6x + 9) = 12x + 18, not 12x + 11.**

PART 2 · APPLY IT

1. **x(10 + 6) and 16x** Each player spends $10 + $6. Multiply by x players, then add inside the parentheses to get 16x dollars.
2. **11(x + 2) = 11x + 22** There are x + 2 people, and each gets 11 items. Distribute 11 to get 11x + 22.

CHALLENGE

The claim is incorrect. 6(2x + 5) - 4x = 8x + 30, but 8(x + 4) = 8x + 32. The expressions differ by 2 for every value of x.

Accept equivalent forms in the word problems when the requested forms are shown. For the challenge, accept any explanation that correctly shows the expressions are not equivalent.