LESSON MAKER PRO

Expression Switch Up

Show the same relationship in a clearer form.

GRADE 7 · 7.PAR.2.2

7.PAR.2.2 "Rewrite an expression in different forms from a contextual problem to clarify the problem and show how the quantities in it are related."

NAME _____ DATE _____

CHOOSE A CLEAR FORM

You can rewrite an expression by distributing a factor, combining like terms, or factoring out a common factor. Equivalent forms have the same value for every x, but one form may show equal groups while another shows separate totals. Choose the form that makes the quantities easier to understand.

WORKED EXAMPLE

Rewrite 13(x + 8) without parentheses.

1. Multiply 13 by x and by 8.
2. 13(x + 8) = 13x + 13(8).
3. 13(8) = 104.

Answer: 13x + 104

PRACTICE 6 problems

1 Rewrite 6(x + 4) without parentheses.

ANSWER _____

2 Rewrite 9(2x - 5) without parentheses.

ANSWER _____

3 Combine like terms: 7x + 3x + 11.

ANSWER _____

4 Factor out the greatest common factor from 14x + 21.

ANSWER _____

5 Rewrite 4(x + 3) + 5x in simplest form.

ANSWER _____

6 Factor out the greatest common factor from 12x - 30.

ANSWER _____

APPLY IT Show your work

1 A music app charges $5 each month and $2 for each song pack. For 6 months, you buy x song packs each month. The total cost is 6(5 + 2x). Rewrite the expression to show the separate total for the monthly charge and the song packs.

WORK SPACE

ANSWER _____

2 A robotics club has x members. Each member needs 9 LEDs, and the club also buys 3 backup sets of 4 LEDs. The total number of LEDs is 9x + 3(4). Rewrite the expression in simplest form.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A coding club has 6 students. Each student buys a $4 entry badge and pays $3 for each of x workshops. The total cost is 6(4 + 3x). Rewrite the expression. Then explain what each term means in your rewritten form.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Switch Up

GRADE 7 · 7.PAR.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Rewrite 6(x + 4) without parentheses.	**6x + 24**
2	Rewrite 9(2x - 5) without parentheses.	**18x - 45**
3	Combine like terms: 7x + 3x + 11.	**10x + 11**
4	Factor out the greatest common factor from 14x + 21.	**7(2x + 3)**
5	Rewrite 4(x + 3) + 5x in simplest form.	**9x + 12**
6	Factor out the greatest common factor from 12x - 30.	**6(2x - 5)**

PART 2 · APPLY IT

1. **30 + 12x** Distribute 6 to both terms. The monthly charges total 30, and the song packs cost 12x.
2. **9x + 12** Multiply 3 by 4 to find the number of backup LEDs. Then add that constant total to 9x.

CHALLENGE

24 + 18x. The 24 is the cost of 6 entry badges, and 18x is the total cost of x workshops for 6 students at $3 per workshop.

Accept terms written in a different order, such as 12x + 30. For factoring items, accept only equivalent factored forms that use the greatest common factor requested.