

Expression Power Moves

Use properties to rewrite expressions.

GRADE 7 • NY-7.EE.1

NY-7.EE.1 "Add, subtract, factor, and expand linear expressions with rational coefficients by applying the properties of operations."

NAME _____

DATE _____

REWRITE WITH PROPERTIES

Use the distributive property to multiply a factor by every term inside parentheses. Combine like terms after expanding, or use a common factor to write an expression in factored form.

WORKED EXAMPLE

Expand and simplify: $\frac{7}{8}(16x + 24)$

1. Multiply $\frac{7}{8}$ by $16x$: $\frac{7}{8}(16x) = 14x$.
2. Multiply $\frac{7}{8}$ by 24 : $\frac{7}{8}(24) = 21$.
3. Write the two products as a sum: $14x + 21$.

Answer: $14x + 21$

PRACTICE 6 problems

1 Simplify: $\frac{1}{3}x + \frac{1}{6}x - \frac{5}{9}$

ANSWER _____

2 Expand and simplify: $-\frac{5}{9}(18x - 27)$

ANSWER _____

3 Factor completely: $15x - 25$

ANSWER _____

4 Simplify: $(\frac{2}{3}x + \frac{13}{6}) - (\frac{1}{4}x - \frac{5}{3})$

ANSWER _____

5 Expand and simplify: $\frac{11}{12}(12x - 36)$

ANSWER _____

6 Factor completely: $\frac{9}{10}x - \frac{3}{5}$

ANSWER _____

APPLY IT Show your work

- 1** A student makes x sticker sheets for the school art sale. Each sheet has 15 stickers, and 20 extra sample stickers are included. A sponsor gives $\$3/5$ for each sticker. Write and simplify an expression for the total donation.

WORK SPACE

ANSWER _____

- 2** For a skate video, a creator records x clips and 5 bonus clips. Each clip needs $2/9$ gigabyte of storage. The storage expression is $2/9x + 10/9$. Factor the expression to show the storage needed for all the clips.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student claims that $5/6(18x - 30) - 2/5(x + 10)$ is equivalent to $73/5x - 29$. Is the claim correct? Explain your reasoning with algebra steps.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Simplify: $\frac{1}{3}x + \frac{1}{6}x - \frac{5}{9}$	$\frac{1}{2}x - \frac{5}{9}$
2	Expand and simplify: $-\frac{5}{9}(18x - 27)$	$-10x + 15$
3	Factor completely: $15x - 25$	$5(3x - 5)$
4	Simplify: $(\frac{2}{3}x + \frac{13}{6}) - (\frac{1}{4}x - \frac{5}{3})$	$\frac{5}{12}x + \frac{23}{6}$
5	Expand and simplify: $\frac{11}{12}(12x - 36)$	$11x - 33$
6	Factor completely: $\frac{9}{10}x - \frac{3}{5}$	$\frac{3}{10}(3x - 2)$

PART 2 • APPLY IT

1. **\$9x + \$12** The number of stickers is $15x + 20$. Multiply each term by $\frac{3}{5}$ to get $9x + 12$.
2. **$\frac{2}{9}(x + 5)$ gigabytes** Factor out $\frac{2}{9}$ from both terms. The factor $x + 5$ represents the total number of clips.

CHALLENGE

Yes. $\frac{5}{6}(18x - 30) - \frac{2}{5}(x + 10) = 15x - 25 - \frac{2}{5}x - 4 = \frac{73}{5}x - 29$.

Accept equivalent simplified expressions with terms written in a different order. For factored answers, accept any equivalent form that factors out a common rational or integer factor.