Name_____ Date_____ Period_____

LESSON 6-8 · SESSION 2 · PRACTICE · FORM A

Expanding and Factoring Expressions

Learning target – I can expand an expression and factor one using the greatest common factor. · 6.EE.A.3

REMEMBER

- To **expand**, multiply the outside number by each term inside: $3(2x + 5) = 6x + 15$.
- To **factor**, pull out a number every term shares. Factoring **undoes** expanding.
- Use the **GCF**: $8x + 20 = 2(4x + 10)$ is not finished, because 4 and 10 still share 2. $8x + 20 = 4(2x + 5)$ is.

WORKED EXAMPLE

Factor $18x + 27$ using the GCF.

Step 1 The GCF of 18 and 27 is 9.

Step 2 Divide each term: $18x \div 9 = 2x$ and $27 \div 9 = 3$.

Step 3 Expand to check: $9 \times 2x + 9 \times 3 = 18x + 27$.

Answer **$9(2x + 3)$**

WORDS **expand** *(desarrollar)* · **factor an expression** *(factorizar una expresión)* · **greatest common factor** *(máximo común divisor)*

PRACTICE

show your work · label units

1. Expand each expression.

a. $8(c + 3) =$ _____

b. $5(2d + 4) =$ _____

c. $6(y + 7) =$ _____

d. $7(n + 2) =$ _____

2. Factor each expression using the GCF.

a. $12m + 20 =$ _____

b. $15k + 35 =$ _____

c. $14b + 35 =$ _____

d. $18x + 24 =$ _____

3. **Ticket Booths.** Booth 1 writes its ticket cost as $4(t + 9)$. Booth 2 writes its cost as $20t + 45$.

Hint *Find the GCF of 20 and 45 first.*

a. Expand Booth 1's cost. _____

b. GCF of $20t$ and 45: _____

c. Factor Booth 2's cost. _____

Show your work.

4. Expand, Then Combine. Simplify $3(x + 10) + 2x$.

Hint *3 times 10 is part of the answer.*

Show your work.

Simplest form_____

5. Expand, Then Combine. Simplify $4(z + 6) + 5z$.

Show your work.

Simplest form_____

6. Nora's Factoring. Nora factored $16y + 40$ as $2(8y + 20)$. Is she done? If not, factor with the GCF.

Hint *Do 8 and 20 still share a factor?*

Show your work.

GCF form_____

7. Both Directions. Factor $30c + 42$ using the GCF. Then expand your answer to show the two forms match.

Hint *The GCF of 30 and 42 is 6.*

Show your work.

Factored form_____

8. Garden Rows. A garden has $24p + 36$ plants.

a. Factor the expression using the GCF. _____

b. What could the factored form tell you about rows? _____

c. Find the number of plants when $p = 4$. Use both forms. _____

Show your work.

FIND THE ERROR

explain the mistake, then fix it

9. Lucia's Work. Lucia expanded $5(w + 8)$ and wrote $5w + 8$. She said the 8 was already inside the parentheses. Explain her mistake. Then expand correctly.

_____

_____

_____

TEST PRACTICE

choose the best answer

10. Which is $10x + 15$ factored using the GCF?

A $5(2x + 15)$ **B** $5(2x + 3)$ **C** $10(x + 5)$ **D** $2(5x + 15)$

11. Which is the expanded form of $6(y + 4)$?

A $6y + 4$ **B** $6y + 24$ **C** $10y$ **D** $y + 24$

SELF-CHECK CODE *find your answer · copy its letter into that problem's box · spell a math word*

132 **S**	**5x + 30** **T**	**5x + 10** **Q**	**9z + 6** **Z**	**5** **C**	**10d + 20** **F**	**8(2y + 5)** **R**	**9z + 24** **O**	**4(3m + 5)** **A**

#1b	#2a	#3b	#4	#5	#6	#8c

CHECK YOURSELF ☐ I can do this on my own ☐ I need a little help ☐ I have a question about #___