Name_____ Date_____ Period_____

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

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. $9(w + 4) =$ _____

b. $3(4d + 5) =$ _____

c. $5(y + 9) =$ _____

d. $8(n + 3) =$ _____

2. Factor each expression using the GCF.

a. $24q + 18 =$ _____

b. $21k + 28 =$ _____

c. $10b + 25 =$ _____

d. $12x + 30 =$ _____

3. **Art Club Costs.** Club 1 writes its supply cost as $6(s + 8)$. Club 2 writes its cost as $28s + 49$.

Hint *Find the GCF of 28 and 49 first.*

a. Expand Club 1's cost. _____

b. GCF of $28s$ and 49: _____

c. Factor Club 2's cost. _____

Show your work.

4. Expand, Then Combine. Simplify $2(x + 9) + 4x$.

Hint *2 times 9 is part of the answer.*

Show your work.

Simplest form_____

5. Expand, Then Combine. Simplify $5(z + 3) + 3z$.

Show your work.

Simplest form_____

6. Omar's Factoring. Omar factored $18y + 45$ as $3(6y + 15)$. Is he done? If not, factor with the GCF.

Hint *Do 6 and 15 still share a factor?*

Show your work.

GCF form_____

7. Both Directions. Factor $9a + 27$ using the GCF. Then expand your answer to show the two forms match.

Hint *9 divides both 9 and 27.*

Show your work.

Factored form_____

8. Garden Rows. A garden has $18p + 30$ 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. Amina's Work. Amina expanded $7(k + 3)$ and wrote $7k + 3$. She said the 3 was already inside the parentheses. Explain her mistake. Then expand correctly.

_____

_____

_____

TEST PRACTICE

choose the best answer

10. Which is $8n + 12$ factored using the GCF?

A $2(4n + 12)$ **B** $4(2n + 3)$ **C** $8(n + 4)$ **D** $4(2n + 12)$

11. To factor an expression with the GCF, you pull out the –

A greatest common factor

B least common multiple

C largest term

D variable

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

6x + 9 Q	7 O	6x + 18 D	12d + 15 P	9(2y + 5) C	8z + 15 U	8z + 3 Z	6(4q + 3) R	102 T

#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 #___