

Worksheet: Factoring Expressions

Factoring is the opposite of expanding. Instead of multiplying to remove parentheses, you **find the greatest common factor (GCF)** and write the expression as a product.

Steps for Factoring

1. Find the **Greatest Common Factor (GCF)** of all the terms.
2. Divide each term by the GCF.
3. Write the GCF outside the parentheses.
4. Check your answer by distributing.

Example 1

Factor:

$$6x + 18$$

The GCF of **6** and **18** is **6**.

Divide each term by 6:

$$6x \div 6 = x$$

$$18 \div 6 = 3$$

Answer:

$$6(x + 3)$$

Example 2

Factor:

$$15y - 20$$

The GCF is **5**.

Divide:

$$15y \div 5 = 3y$$

$$20 \div 5 = 4$$

Answer:

$$5(3y - 4)$$

Example 3

Factor:

$$8a + 12$$

The GCF is **4**.

Divide:

$$8a \div 4 = 2a$$

$$12 \div 4 = 3$$

Answer:

$$4(2a + 3)$$

Example 4

Factor:

$$18m - 30$$

The GCF is **6**.

Divide:

$$18m \div 6 = 3m$$

$$30 \div 6 = 5$$

Answer:

$$6(3m - 5)$$

Part A – Find the Greatest Common Factor (GCF) - Find the GCF of each pair.

1. 8 and 12 _____
2. 15 and 20 _____
3. 18 and 24 _____
4. 21 and 35 _____
5. 16 and 40 _____
6. 12 and 30 _____

Part B – Factor the Expressions - Factor each expression using the GCF.

7. $8x + 16 =$ _____
8. $12y + 18 =$ _____
9. $15a - 25 =$ _____
10. $14b + 28 =$ _____
11. $20c - 30 =$ _____
12. $9m + 27 =$ _____
13. $16n - 24 =$ _____
14. $18p + 42 =$ _____
15. $30q - 45 =$ _____
16. $24r + 36 =$ _____

Part C – Factor Completely

17. $6x + 24 =$ _____
18. $14y - 56 =$ _____
19. $35m + 10 =$ _____
20. $27a - 18 =$ _____
21. $40b + 16 =$ _____
22. $32c - 48 =$ _____
23. $45d + 30 =$ _____
24. $54e - 36 =$ _____
25. $63f + 21 =$ _____
26. $28g - 42 =$ _____