

### 4-1 Factoring (GCF and Grouping)

#### Quiz 4.1

**Objectives:**

- I can factor the greatest common factor out of an expression.
- I can factor an expression by grouping.

**Vocabulary:** Factors, Greatest Common Factor

1.  $(x-1)(x+2)$

$$x^2 + 2x - x - 2$$

$$x^2 + x - 2$$

2.  $(2x+6)+(-3x-2)$

$$-x + 4$$

Find the greatest common factor (GCF) of the terms

$-4x, 12$   
4

$6x^3, 12x^2, 15x$   
 $3x$

$4x^3y^4, 8x^2y^3, 12xy^2$   
 $4xy^2$

You Try

Find the greatest common factor (GCF) of the terms

$3x^3y^5, 9x^2y^3, 12xy^4$

$3xy^3$

Factor out the GCF

$4a^2b^2 - 10ab^3 + 18a^3b^4$   
 $2ab^2(2a - 5b + 9a^2b^2)$   
 $4a^2b^2 - 10ab^3 + 18a^3b^4$

You Try

Factor out the GCF

$6y^3 - 14y^2 + 10y$   
 $2y(3y^2 - 7y + 5)$

Factor out the GCF

$$4x^3 + 6x^2 + 2x$$

$$2x(2x^2 + 3x + 1)$$

Factor out the GCF

$$-2b^3 + 10b^2 + 8b$$

$$-2b(b^2 - 5b - 4)$$

You Try

Factor out the GCF

$$-5y^2 + 10y$$

$$-5y(y - 2)$$

Factor out the Greatest Common Binomial Factor

$$4x(x-3) + 5(x-3)$$

$$(x-3)(4x+5)$$

You Try

Factor out the Greatest Common Binomial Factor

$$4a(a-3) + 3(a-3)$$

$$(a-3)(4a+3)$$

Factor by grouping

$$4x - 4y + ax - ay$$

$$4(x-y) + a(x-y)$$

$$(x-y)(4+a)$$

Factor by grouping

$$\begin{aligned} & \underline{6x^2 + 9x} - \underline{10x - 15} \\ & 3x(2x + 3) - 5(2x + 3) \\ & (2x + 3)(3x - 5) \end{aligned}$$

Factor COMPLETELY by grouping

$$\begin{aligned} & 6x^2 + 8x + 18x + 24 \\ & 2(\underline{3x^2 + 4x} + \underline{9x + 12}) \\ & \quad x(3x + 4) + 3(3x + 4) \\ & \quad 2(3x + 4)(x + 3) \end{aligned}$$

You Try (make sure they do this one)

Factor by grouping

$$6z^2 + 2z + 9z + 3$$

You Try (make sure they do this one)

Factor by grouping

Just like  
#5

$$\begin{aligned} & \underline{2x^2 + 2x} + \underline{x + 1} \\ & 2x(x + 1) + 1(x + 1) \\ & (x + 1)(2x + 1) \end{aligned}$$

Check for understanding

Vocabulary: Factors, Greatest Common Factor