

# 1-1

## Factoring with Greatest Common Factors (GCF)

### Objectives:

**1-1a:** I can identify a GCF

**1-1b:** I can factor out a GCF from an expression

Find the greatest common factor (GCF) of the terms

$$\underline{4x}, \underline{12} \qquad 6x^3, 12x^2, 15x$$
$$3x$$

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

You Try

Find the greatest common factor (GCF) of the terms

$$\underline{3} \underline{x^3} \underline{y^5}, \underline{9} \underline{x^2} \underline{y^3}, \underline{12} \underline{x} \underline{y^4}$$

$$3 \times y^3$$

Factor out the GCF

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

Multiply the GCF back into the expression.

What did you notice?

You Try

Factor out the GCF

$$\rightarrow 6y^3 - 14y^2 + 10y$$

$$2y (3y^2 - 7y + 5)$$

Check by multiplying the GCF back into the expression.

Factor out the GCF

$$\underline{4x^3} + \underline{6x^2} + \underline{2x}$$

$$\underline{2x} ( \underline{2x^2} + \underline{3x} + \underline{1} )$$

Factor out the GCF.

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

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

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

What happens if pull out a negative GCF compared to a positive GCF?

You Try

Factor out the GCF

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

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

$$\underline{-5y(y-2)}$$



Factor out the Greatest Common Binomial Factor

$$\underline{4x(x-3)} + \underline{5(x-3)}$$

$$\underline{(x-3)} (4x+5)$$

You Try

Factor out the Greatest Common Binomial Factor

$$4a(\underline{a-3}) + 3(\underline{a-3})$$

$$\underline{(a-3)} (4a+3)$$

