

## Ch 8 Part 2 Quadratic Expressions

GCF: **G**reatest **C**ommon **F**actor

$$5 \cdot 4 = 20 \leftarrow 20 \text{ is the product}$$

↑ ↑

5 and 4 are **factors**

$$20 = 5 \cdot 4$$

We factored 20 into  $5 \cdot 4$

### Polynomials

$$2x(x+4) = 2x^2 + 8x$$

product

$2x$  and  $(x+4)$  are factors of  $2x^2 + 8x$

$$2x^2 + 8x = 2x(x+4)$$

factored  $2x^2 + 8x$  into  $2x \cdot (x+4)$   
Product factor factor

1.  $5(x-7) = 5x - 35$

F: 5 and  $(x-7)$

P:  $5x - 35$

2.  $3x(x+9) = 3x^2 + 27x$

F: ?

P: ?

3.  $-10x^2 + 60x = -10x(x-6)$

4.  $4xy^2(3x+8y) = 12x^2y^2 + 32xy^3$

The first step in factoring polynomials is to factor out the GCF.

GCF: Is the largest integer and the highest degree of each variable that WILL DIVIDE EVENLY INTO EACH TERM IN POLYNOMIAL

$$5x^2 - 35x$$

$$\textcircled{5}x \cdot x - \textcircled{5} \cdot 7x$$

$$\text{GCF} = 5x$$

$$5x \left( \frac{5x^2}{5x} - \frac{35x}{5x} \right)$$

$$\checkmark 5x(x-7)$$

→ Verify: Distribute

$$\begin{array}{l} 5x(x-7) \\ 5x^2 - 35x \end{array}$$

$$12x^2y^2 + 32xy^3$$

$$\textcircled{2} \cdot \textcircled{2} \cdot \textcircled{3} x x y y + \textcircled{2} \textcircled{2} \textcircled{2} \cdot \textcircled{2} \cdot \textcircled{2} x y y y$$

$$4xy^2$$

$$4xy^2$$

$$\text{GCF} = 4xy^2$$

$$4xy^2 \left( \frac{12x^2y^2}{4xy^2} + \frac{32xy^3}{4xy^2} \right)$$

$$\checkmark 4xy^2(3x+8y)$$

$$4xy^2(3x+8y)$$

$$12x^2y^2 + 32xy^3$$

$$1. 9x + 45$$

$$2. 7x^2 - 21x$$

$$3. 18x^6 + 12x^3$$

$$4. 5x^2 - 5x$$

$$5. 15x^3 - 25x^2 + 55x$$

T8-4 Stick Quiz

Factor

$$1. 20x^2y + 15xy$$

$$2. 5fg^2 + fg^2 + 15fg$$

$$3. 12m^2n + 12m$$

