

On your whiteboard...

Rewrite each quadratic expression in standard form and classify the product by the number of terms.

$$4x(x + 7)$$

product of a monomial
and binomial

$$4x(x + 7)$$

$$4x^2 + 28x$$

binomial

$$4(x + 1)(x + 7)$$

product of a monomial
and two binomials

$$4(x + 1)(x + 7)$$

$$4(x^2 + 7x + x + 7)$$

$$4(x^2 + 8x + 7)$$

$$4x^2 + 32x + 28$$

trinomial

$$4(x + 7)(x - 7)$$

product of a monomial
and two binomials

$$4(x + 7)(x - 7)$$

$$4(x^2 - 7x + 7x - 49)$$

$$4(x^2 - 49)$$

$$4x^2 - 196$$

binomial

Partner Practice: Factoring out the GCF

Distributing is the process of multiplying a term in front of parenthesis to each term inside the parenthesis. For example, $14x(x + 2)$ becomes $14x(x) + 14x(2)$ when you distribute the $14x$ to each of the terms in the parenthesis. Then simplifying gives you $14x^2 + 28x$. Doing this process in reverse is called **factoring**.

When you factor a polynomial, you are trying to find the quantities that you multiply together in order to create the polynomial. The **greatest common factor (GCF)** for a polynomial is the largest monomial that is a factor of (divides) each term of the polynomial. Note: The GCF must be a factor of **EVERY** term in the polynomial.

The hardest part of factoring out a GCF is determining what the greatest common factor of each term in the polynomial is. To factor $14x^2 + 28x$, you could find the GCF this way...

Multiply to find GCF

$$2 \overline{) 14x^2 + 28x}$$

$$7 \overline{) 7x^2 + 14x}$$

$$x \overline{) x^2 + 2x}$$

$$(x + 2)$$

14x

$$14x(x + 2)$$

GCF "Cake" Method



Factor the GCF from the polynomials below.

$$\begin{array}{l} 5 \overline{) 245x^2 - 315x} \\ 7 \overline{) 49x^2 - 63x} \\ x \overline{) 7x^2 - 9x} \\ 7x - 9 \end{array}$$

$$35x(7x-9)$$

$$\begin{array}{l} 5 \overline{) 240x^2 - 180x + 45} \\ 3 \overline{) 48x^2 - 36x + 9} \\ 16x^2 - 12x + 3 \end{array}$$

$$15(16x^2 - 12x + 3)$$

$$\begin{array}{l} (x+7) \overline{) 4x(x+7) - 10(x+7)} \\ 2 \overline{) 4x - 10} \\ 2x - 5 \end{array}$$

$$2(x+7)(2x-5)$$