

## Pre-Algebra

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**Aim:** How do we factor polynomial expressions using the GCF?

**Do Now:** Identify the GCF of each expression

a.  $12x^2 - 4x$

b.  $27a^3b^2 + 18a^4b$

c.  $3x^3y + 6xy - 3x^4y^5$

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What does it mean to factor a polynomial expression?

A polynomial expression written as a \_\_\_\_\_ is written in \_\_\_\_\_

**Example:** Factor  $30x^4 + 5x^3 - 25x^2$

**Steps:**

**1<sup>st</sup>:** Find the \_\_\_\_\_ of the coefficients.

*Ask yourself:* Is there a number that I can divide 30, 5, and 25 by evenly?

**2<sup>nd</sup>:** Find the \_\_\_\_\_ of the variables.

*Ask yourself:* Can I factor out a variable from every term?

**3<sup>rd</sup>:** Factor out the GCF and rewrite the polynomial as a \_\_\_\_\_ of a monomial and polynomial.

*Divide each term of the polynomial by the GCF.*

GCF:  $5x^2$        $\frac{30x^4 + 5x^3 - 25x^2}{5x^2} =$

The **factored form** of  $30x^4 + 5x^3 - 25x^2$  is \_\_\_\_\_

**Check:** Distribute to make sure that you have factored the polynomial expression correctly.

**NOW IT'S YOUR TURN -**

**Rewrite each polynomial expression by in factored form by factoring out the GCF.**

1.  $12x + 24$

2.  $16x^2 - 24x$

3.  $9x^3 + 6x^2 - 27x$

4.  $36x^5 - 54x^3y^2$

5.  $18x^2y - 6xy$

6.  $12x^2y^3 + 16x^2y^5$