

Name:

Date:

Topic:

Class:

Main Ideas/Questions

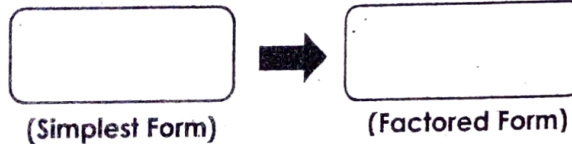
Notes/Examples

### WARM-UP

**Directions:** Simplify the following polynomials.

- $a(3a + 7) =$  \_\_\_\_\_
- $-2m(m^2 + 6m - 1) =$  \_\_\_\_\_
- $4x^3y(x^2 - 2y) =$  \_\_\_\_\_

### WHAT IS FACTORING?



Polynomials that cannot be factored are called \_\_\_\_\_!

### FACTORING A GCF

(Greatest Common Factor)

There are several factoring methods; the approach depends on the polynomial. We will start by identifying and factoring out the **greatest common factor** ( ) of the polynomial.

**Steps for Factoring a GCF:**

**Step 1:** Identify the GCF of the polynomial:

- Check the \_\_\_\_\_ for a GCF.
- Now look at the \_\_\_\_\_. A variable must be present in all terms to be a GCF. If a variable is present in all terms, take the one with the smallest exponent.

**Step 2:** Divide each term by the \_\_\_\_\_ and leave the remaining factors in parentheses and \_\_\_\_\_ exponents from variables.

**Step 3:** Check your work by \_\_\_\_\_

### EXAMPLES

**Directions:** Factor each polynomial. Check your work by distributing. If a polynomial cannot be factored, write " ".

1.  $3x + 12$

2.  $7y - 7$

3.  $8m + 36n$

4.  $5x + 30y$

**5.**  $6a^2 + 27$

**6.**  $4y^2 - 24y$

**7.**  $21cd - 3d$

**8.**  $14gh - 18h$

**9.**  $15a^2b - 30ab$

**10.**  $16bc^2 + 24bc$

**11.**  $ab - a$

**12.**  $x^2y + 3xy$

**13.**  $5x - 13y$

**14.**  $18a^2bc^2 - 48abc^3$

**15.**  $2x^2y - 2xy^2 + 4xy$

**16.**  $9r^8 - 18r^2s - 24rs^2$

**17.**  $6y^4 + 14y^3 - 10y^2$

**18.**  $12a^5b^2 - 36a^4b^3 - 6a^2b^2$

**19.**  $14gh^2 + 28gh + 14h$

**20.**  $18x^2yz - 24xz^2 + 36yz^3$

**21.**  $m^3n - m^2n^2 + 5mn^3$

**22.**  $16xy^2 + 28xy + 8y$

**23.**  $35a^2 - 20ab^2 + 15a$

**24.**  $3a^3b^2c - 9a^2b^3c^2 + 15ab^4c^3$