

"Factor" simply
means to
UNDISTRIBUTE!

Greatest Common (GCF)

Factor

Steps:

1. Factor each term down to prime numbers ex: 1, 2, 3, 5, 7, 11, 13, 17...
2. Find the Common factors
3. Pull out the common factors
4. Ask yourself "What's left?"
5. Set up factors as GCF (what's left?)

- If the leading coefficient is negative you MUST pull out the negative with the GCF. Watch out for the sign changes!

Examples:

$$6y^2 + 3y$$

$$6y^2 = 2 \cdot 3 \cdot y \cdot y$$

$$\text{GCF: } 3y$$

$$3y = 3 \cdot y \cdot 1$$

whats left: $2y + 1$

$$3y(2y + 1)$$

$$5x^2 - 5x + 15$$

$$5x^2 = 5 \cdot x \cdot x$$

$$5x = 5 \cdot x$$

$$15 = 3 \cdot 5$$

$$5(x^2 - x + 3)$$

$$25a^3b^5 + 50a^4b^4 - 15a^5b^2$$

$$25a^3b^5 = 5 \cdot 5 \cdot a \cdot a \cdot a \cdot b \cdot b \cdot b \cdot b \cdot b$$

$$50a^4b^4 = 2 \cdot 5 \cdot 5 \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b \cdot b \cdot b$$

$$15a^5b^2 = 3 \cdot 5 \cdot a \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b$$

$$5a^3b^2(5b^3 + 10ab^2 - 3a^2)$$

$$-15x^2 - 5x + 30$$

$$-15x^2 = - \cdot 3 \cdot 5 \cdot x \cdot x$$

$$-5x = - \cdot 5 \cdot x$$

$$+30 = - \cdot - \cdot 2 \cdot 3 \cdot 5$$

$$-5(3x^2 + x - 6)$$