Math-2A

Lesson 2-10

Factoring Common Factors

Factor (noun) a number or expression that is being multiplied.

$2x$ Factors: 2, x.

$2(x+3)$ Factors: 2, (x + 3).

Why is (x + 3) a factor? (it looks like a sum)

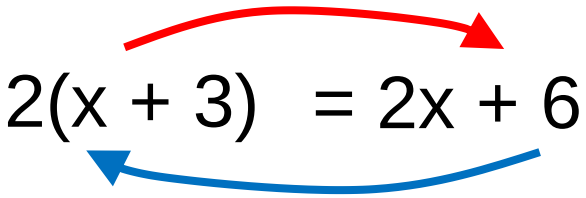
$2(x+3)$

Using the distributive property: 2(x + 3) = 2x + 6

Common Factor (noun) a number that is a factor of more than one term in a polynomial.

To Factor (verb) to break apart a number or an expression into its factors.

distributive property: multiply a term times a sum.



To factor out the common factor: the "reverse" of the distributive property.

Factor out the common factor from each binomial.

$$35x - 28 = 7(5x - 4)$$

$$15x - 20 = 5(3x - 4)$$

$$11x + 33 = 11(x + 3)$$

Factor out the common factor from each binomial.

$$x^3 - x^2 = x^2(x-1)$$

$$x^5 + x^3 = x^3(x^2+1)$$

$$x^7 - x^2 = x^2(x^5-1)$$

The smallest power will be the common-factor for variables.

$$5x^4 + 15x^2 = 5x^2(x^2+3)$$

$$24x^6 - 20x^3 = 4x^3(6x^3-5)$$

$$36x^3 - 12x = 12x(3x^2-1)$$