L3 Common Factors

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Lesson 3 Common Factors

The greatest common factor includes the largest common coefficient (number) factor and any variable(s) with the highest common power (exponent).

Example 1

Factor:

a.) $\dfrac{6x}{3} + \dfrac{9}{3}$

$3(2x + 3)$

GCF

b.) $\dfrac{5x}{5} + \dfrac{20}{5}$

$5(x + 4)$

* Can check using multiplication

c.) $\dfrac{5x^3}{5x^2} + \dfrac{20x^2}{5x^2}$

$5x^2(x + 4)$

Try

$2a(x + 4) - 5(x + 4)$

d.) $3y(4x + 3) - 2(4x + 3)$

$(4x + 3)(3y - 2)$

GCF

Example 2

Factor:

a) $\dfrac{6}{6} - \dfrac{12z}{6} + \dfrac{18z^2}{6}$

$6\left(1 - 2z + 3z^2\right)$

Anything divided by itself is 1

b) $\dfrac{4a^3}{4a} + \dfrac{8a^2}{4a} + \dfrac{16a}{4a}$

$4a\left(a^2 + 2a + 4\right)$

Try

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

$3x\left(3x - 9x^2 + 1\right)$

Example 3
Factoring Polynomials in More than One Variable

Factor:

a) $\dfrac{-20c^4d}{-5cd} - \dfrac{30c^3d^2}{-5cd} - \dfrac{25cd}{-5cd}$

$-5cd\left(4c^3 + 6c^2d + 5\right)$

* If the first is negative, the GCF will be negative

b) $7a^2b - 28ab + 14ab^2$

$7ab\left(a - 4 + 2b\right)$

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#10 a, c, e
12
14 a, b
15 b i, iii