$$\frac{a^m}{a^n} = a^{m-n}$$

$a^0 = 1$ except 0^0 is undefined

$$x^{-n} = \frac{1}{x^n}$$

$$\frac{x^0}{x^n} = x^{0-n} = x^{-n}$$

$$x^n = \frac{1}{x^{-n}}$$

$$\frac{x^0}{x^{-n}} = x^{0-(-n)} = x^n$$

$16y^{-4}z^2$

$$\frac{12xy^8z^{-3}}{24x^{-2}y^{11}z^2}$$

$$\frac{16y^4z^2 - 8y^6z^4 + 12y^8z^3}{-4y^4z}$$

$(16y^3 - 9y^2 - 8y) \div (2y^2)$

$(a^3 - 10a + 24) \div (a + 4)$

A way to check is quotient times divisor plus remainder equals the dividend. If the remainder is zero then the quotient is a factor.

$(10y^3 + 6y^2 - 9y + 10) \div (5y - 2)$

$(3x^4 + x^3 - 8x^2 - 3x - 3) \div (x^2 - 3)$