

Exponents:

Exponents are an important aspect of algebra. There are 8 Exponent Rules:

Expanded	Condensed
$b^x b^y$	b^{x+y}
$\frac{b^x}{b^y}$	b^{x-y}
$a^x b^x$	$(ab)^x$
$\frac{a^x}{b^x}$	$\left(\frac{a}{b}\right)^x$
$(b^x)^y$	b^{xy}

$$b^0 = 1$$

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

$$b^{x/y} = y\sqrt[y]{b^x} = (y\sqrt{b})^x$$

Examples:

$$2x^3 \cdot 7x^4 =$$

$$\frac{8x^5}{12x^2} =$$

$$-(9x^7y^{-5})^0 =$$

$$(x^2y)(x^3y^4) =$$

$$\frac{6x^7y}{2x^3\sqrt{y}} =$$

$$(7x^6y^{-9})^0(x^3)^{-\frac{1}{9}} =$$

$$5x^2y(2x^4y^{-3}) =$$

$$\frac{3x^2y^{-3}}{12x^{-4}y^3} =$$

$$\left(\frac{-7x^{-2}y^3z^0}{3x^3y^4z^{-3}}\right)^{-4} =$$