

Operations with

Exponent Rules

Notes

Exponents

We covered this in *Combining Like Terms*.

You must have **like terms (same variable & exponent)** to add or subtract, for example, you cannot add

$$2x^5 + 7x^5 = 9x^5$$

Adding,
Keep Exp.

$$2x^5 + 7x^3 = 2x^5 + 7x^3$$

$$2x^5 \cdot 7x^3 = 14x^8$$

Multiplying,

Add Exp.

Long Way:
 $2x^5 \cdot 7x^3 = 2xxxxx \cdot 7xxx = 14x^8$

$$14x^{5+3}$$

$$(2x^5)^3 = 8x^{15}$$

Raising to Power,

Mult. Exp.

Long Way:
 $(2x^5)^3 = (2x^5)(2x^5)(2x^5) = 8x^{15}$
 $2xxxxx \cdot 2xxxxx \cdot 2xxxxx$

$$\frac{4 \cancel{24}x^{5-3}}{\cancel{16}x^3} = 4x^2$$

Dividing,

Subtract Exp.

Long Way:
 $\frac{4 \cancel{24}xxxx}{\cancel{16}xxx} = 4x^2$

$$\frac{4 \cancel{24}x^8}{\cancel{16}x^{5-3}} = \frac{4}{x^2}$$

(smaller from larger)

$$\frac{24x^3}{6x^5} = \frac{4 \cancel{24}xxx}{\cancel{16}xxxxx} = \frac{4}{x^2}$$

We covered this in *Fractions- Simplify*