

# Indices

## Rules of indices

### List of Indice Laws

- $x^0 = 1$
- $x^{-n} = \frac{1}{x^n}$
- $x^n \cdot x^m = x^{n+m}$
- $x^n \div x^m = x^{n-m}$
- $(x^n)^m = x^{n \cdot m}$
- $x^{\frac{n}{m}} = \sqrt[m]{x^n}$

Examples:

1.

$$\frac{5x^{-\frac{5}{4}} \times 4x^{\frac{13}{4}}}{x^{\frac{3}{2}}}$$

$$= \frac{20x^{-\frac{5}{4} + \frac{13}{4}}}{x^{\frac{3}{2}}} = \frac{20x^{\frac{8}{4}}}{x^{\frac{3}{2}}} = 20x^{2 - \frac{3}{2}} = 20x^{\frac{1}{2}}$$

2.

When there is a + or - as part of the fraction split it into parts and then use indices rules

$$\frac{18x^{\frac{1}{5}} + 6x^{\frac{2}{5}}}{6x^{\frac{1}{5}}}$$

$$= \frac{18x^{\frac{1}{5}}}{6x^{\frac{1}{5}}} + \frac{6x^{\frac{2}{5}}}{6x^{\frac{1}{5}}} = 3 + x^{\frac{1}{5}}$$