

Laws of Exponents

1)  $3x^2y^{-4} \cdot 3x^4 \cdot 2x^{-4}y^{-3}$

$18x^2y^{-7}$

$\frac{18x^2}{y^7}$

2)  $(-3x^{-3}y^3)^2$

$\frac{9}{(-3)^2} x^{-6} y^6$

$\frac{9y^6}{x^6}$

3)  $(x^3y^{-1})^{-3} \cdot 2x^{-1}y^{-4}z^{-3}$

$x^{-9}y^3 \cdot 2x^{-1}y^{-4}z^{-3}$

$2x^{-10}y^{-1}z^{-3}$

$\frac{2}{x^{10}yz^3}$

4)  $\frac{yx^2 \cdot 2x^{-3} \cdot 2y^{-1}}{2xy^{-4}}$

$\frac{4x^{-1}y^0(1)}{2xy^{-4}}$

$2xy^{-4}$

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

5)  $\frac{2a \cdot 2b^4}{(2a^2b^{-4})^{-1}}$

$\frac{4ab^4}{2^{-1}a^{-2}b^4}$

$4 \cdot 2a^3b^0$

$8a^3$

6)  $\frac{(2x^{-2}y^4)^{-4} \cdot x^3y^0}{2x^3y^0}$

$\frac{2^{-4} \cdot 8y^{-16} \cdot x^3y^0}{2x^3y^0}$

$2x^3y^0$

$\frac{x^3y^{-16}}{2^4 \cdot 2x^3} = \frac{x^3}{32y^{16}}$

$$7) \frac{(2x^{-2}y^3)^2}{((2y^3)^{-2} \cdot xy^2)^4}$$

$$\frac{2^2 x^{-4} y^6}{(2^{-2} y^{-6} \cdot xy^2)^4}$$

$$\frac{4x^{-4}y^6}{2^{-8}y^{-24}x^4y^8}$$

$$2^8 \cdot 4 x^{-8} y^{38}$$

$$\rightarrow \frac{1024 y^{38}}{x^8}$$

$$8) \left( \frac{2x^2y^{-2} \cdot xy}{x^3y^{-2}} \right)^0$$

$$1$$

$$9) 2u^0v^3 \cdot 3u^{\frac{5}{4}}v^{-\frac{1}{2}}$$

$$6 u^{\frac{5}{4}} v^{\frac{5}{2}}$$

$$10) (ba^{\frac{3}{4}})^{\frac{3}{2}}$$

$$b^{\frac{3}{2}} a^{\frac{9}{8}}$$

$$11) \frac{xy^{-2} \cdot (x^2)^{\frac{4}{3}}}{(x^{\frac{1}{2}}y^{-2})^{-\frac{3}{2}}}$$

$$\frac{xy^{-2} \cdot x^{\frac{8}{3}}}{x^{-3}y^3}$$

$$\frac{x^{\frac{11}{3}}y^{-2}}{x^{-3}y^3} \rightarrow \frac{x^{\frac{53}{12}}}{y^5}$$

$$12) \left( \frac{x^{\frac{5}{3}}z^{-\frac{2}{3}} \cdot x^{\frac{1}{2}}y^{-1}}{(x^{\frac{1}{3}}y^{\frac{3}{2}})^4} \right)^{\frac{1}{4}}$$

$$\frac{x^{\frac{5}{12}}z^{-\frac{1}{6}} \cdot x^{\frac{1}{8}}y^{-\frac{1}{4}}}{x^{\frac{1}{3}}y^{\frac{3}{2}}}$$

$$\frac{x^{\frac{5}{24}}}{z^{\frac{1}{6}}y^{\frac{7}{4}}}$$