

## Rational Exponents - Part 2

Simplify. Your answer should contain only positive exponents.

$$1) \frac{(-x^4)^4}{(-x^4)^0 \cdot x^3}$$

$$x^{13}$$

$$2) \frac{(-x^3)^2 \cdot 2x^2}{2x^3}$$

$$x^5$$

$$3) \frac{n^{-3}}{2n^0 \cdot (n^3)^{-3}}$$

$$\frac{n^6}{2}$$

$$4) \frac{(2k^0)^{-4} \cdot (2k^0)^3}{-k^3}$$

$$-\frac{1}{2k^3}$$

$$5) \frac{2y^{-1} \cdot 2xy^0}{(x^4)^{-1}}$$

$$\frac{4x^5}{y}$$

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

$$-\frac{y^6}{4x^7}$$

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

$$1$$

$$8) \left( \frac{x^4 y^2 \cdot -x^{-3}}{2y^0} \right)^4$$

$$\frac{x^4 y^8}{16}$$

$$9) \frac{(-2m^0)^3 \cdot (-2m^4 n^{-2})^2}{(2m^4 n^{-1})^{-4}}$$

$$-\frac{512m^{24}}{n^8}$$

$$10) \frac{(-2n^4)^{-4} \cdot -2m^2 n^3}{2m^3 n^4}$$

$$-\frac{1}{16n^{17}m}$$

$$11) \left( \frac{-yx^4z^0 \cdot x^0z^{-2}}{-2zx^0y^{-1}} \right)^3$$

$$\frac{y^6x^{12}}{8z^9}$$

$$12) \frac{2j^0}{2h^{-1}j^2k^2 \cdot 2h^{-3}j^{-2}k^3 \cdot (h^4k^2)^{-3}}$$

$$\frac{h^{16}k}{2}$$

$$13) \frac{(-rp^4q^2)^4}{2p^{-2}q^{-4}r^{-4} \cdot -2p^{-2}q^3r^4}$$

$$\frac{p^{20}q^9r^4}{4}$$

$$14) \frac{(hj^4k^2)^4 \cdot -kh^{-1}j^{-3}}{2h^3j^2}$$

$$\frac{k^9j^{11}}{2}$$

$$15) \frac{(-2x^0y^4)^2}{2yx^0 \cdot 2x^{-1}y^3z^{-3}}$$

$$xz^3y^4$$

$$16) \frac{2p^4q^3r^{-2}}{(-q^{-3}r^2)^4 \cdot (-p^{-1}q^4)^4}$$

$$\frac{2p^8}{r^{10}q}$$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

$$17) \frac{a^4 b^{-3/2} c^{5/2}}{a^2 c^{3/2} \cdot ca^2 b^{-3/2}}$$

$$\frac{a^{13/4} c^{7/4}}{b^{3/4}}$$

$$18) \frac{m^{-5/3} n^{1/3} p^{3/2}}{(m^{-1} n^{1/2} p^{1/4})^0}$$

$$\frac{p^{11/6}}{m^{5/3}}$$

$$19) \frac{(x^{-4/3} y^{2/3} z^2)^{3/2} x^{-2} y^1 z^3}{(x^2 y^{1/2} z^{-5/4})^{1/3} \cdot zx^{-3/2} y^2 \cdot x^0 y^{-1}}$$

$$\frac{z^{29/12}}{x^{7/6} y^{1/6}}$$

$$20) \frac{(x^{5/3} y^{3/4} z^{-4/3})^{1/2} (x^{2/3} y^{1/2} z^{2/3} \cdot xy^{1/4} z^{-2})^{1/2}}{x^{-3/2} y^{-1}}$$

$$\frac{x^{7/3} y^{11/8} z^{2/3}}{z^{2/3}}$$