

Worksheet Exponent Laws

$$1) \frac{2v^4 \cdot 3u^4v \cdot 3u^2v^2}{2 \cdot 3 \cdot 3 \cdot v^4v^2v^2 \cdot u^4u^2}$$

$$= \frac{18 v^9 u^6}{18 v^9 u^6}$$

$$2) \frac{4y^3 \cdot 4y^2}{4 \cdot 4 \cdot y^3y^2}$$

$$= \frac{16 y^5}{16 y^5}$$

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

$$= \frac{2 \cdot 2^2 x^2 y^3 x^4}{8 x^8 y^3}$$

$$4) \frac{y^4 \cdot (2x^2y^2)^4}{2^4 y^4 y^4 x^{12}}$$

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

$$5) \frac{3m^4n^2}{m^3n^1}$$

$$= 3m^{4-3}n^{2-1}$$

$$= 3m^1n^1$$

$$= 3m^2n^3$$

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

$$= \frac{4}{4} u^4 v^{2-2}$$

$$= 1 u^4 v^0$$

$$= 1 u^4 v^4$$

$$7) \left(\frac{b^2 \cdot b^4}{b^2}\right)^2$$

$$= \left(\frac{b^{2+4}}{b^2}\right)^2$$

$$= \left(\frac{b^6}{b^2}\right)^2$$

$$= (b^{6-2})^2$$

$$= (b^4)^2$$

$$= b^8$$

$$8) \frac{(a^{-2}b^3)^{-1} \cdot 2a^4b^3}{2a}$$

$$= \frac{a^2b^{-3} \cdot 2a^4b^3}{2a}$$

$$= \frac{2a^2a^4b^{-3}b^3}{2a}$$

$$= \frac{2a^6b^0}{2a^1}$$

$$= \frac{2}{2} a^{6-1} b^0$$

$$= 1 a^5 1$$

$$= a^5$$

$$9) \left(\frac{m^3n^4}{m^4n^1}\right)^2$$

$$= \left(\frac{m^3n^4}{m^4n^1}\right)^2$$

$$= \left(\frac{m^{3-4}n^{4-1}}{m^1n^1}\right)^2$$

$$= \left(\frac{m^{-1}n^3}{m^1n^1}\right)^2$$

$$= m^{-2}n^2$$

$$10) \frac{x^4y^{-2}}{(2y^3)^2yx^2}$$

$$= \frac{x^4y^{-2}}{2^2y^6y^1x^2}$$

$$= \frac{x^4y^{-2}}{2^2y^7x^2}$$

$$= \frac{x^4y^{-2}}{2^2y^7}$$

$$= \frac{x^4y^{-2-7}}{2^2}$$

$$= \frac{x^4y^{-9}}{2^2}$$

$$= \frac{x^4y^9}{2^2}$$

leave for now but we will talk about (-) exponents today