EVENS MORE PROPERTIES OF EXPONENTS

② $(x^4)^{-3}\, 2^1 x^4 = x^{-12} \cdot 2^1 \cdot x^4$

$= 2^1 x^4 x^{-12}$

$= 2\,\frac{x^4}{x^{12}} = \frac{2}{1}\,\frac{1}{x^8} = \boxed{\frac{2}{x^8}}$

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④ $(2^1 v^1)^2\, 2^1 v^2 = 2^2 v^2\, 2^1 v^2$

$= 2^2 2^1 v^2 v^2 = 2^3 v^4 = \boxed{8v^4}$

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⑥ $\dfrac{2^1 y^3 \cdot 3^1 x^1 y^3}{3^1 x^2 y^4} = \dfrac{2^1 \cdot 3^1}{3^1} \cdot \dfrac{x^1}{x^2}\, \dfrac{y^3 y^3}{y^4}$

$= \frac{6}{3} \cdot \frac{1}{x}\, \frac{y^6}{y^4}$

$= \frac{2}{1} \cdot \frac{1}{x} \cdot \frac{y^2}{1}$

$= \boxed{\frac{2y^2}{x}}$

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⑧ $\dfrac{3^1 x^2 y^2}{2^1 x^{-1} 4^1 y^1 x^2} = \dfrac{3^1}{2^1 \cdot 4^1} \cdot \dfrac{x^2 x^1}{x^2}\, \dfrac{y^2}{y^1}$

$= \frac{3}{8} \cdot \frac{x^3}{x^2}\, \frac{y}{1}$

$= \frac{3}{8}\, \frac{x}{1}\, \frac{y}{1} = \boxed{\frac{3xy}{8}}$

(10) $\dfrac{2^1 m^{-4}}{(2^1 m^{-4})^3} = \dfrac{2^1 m^{-4}}{2^3 m^{-12}} = \dfrac{2^1}{2^3} \dfrac{m^{12}}{m^4}$

$= \dfrac{1}{2^2} \dfrac{m^8}{1}$

$= \boxed{\dfrac{m^8}{4}}$

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(12) $\dfrac{2^1 x^3}{(x^{-1})^3} = \dfrac{2^1}{1} \dfrac{x^3}{x^{-3}} = \dfrac{2^1}{1} \cdot \dfrac{x^3 x^3}{1} = \boxed{2x^6}$

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(14) $x^4 y^3 \cdot (2^1 y^2)^0 = x^4 y^3 2^0 y^0 = x^4 y^3 \cdot 1 \cdot 1$

$= \boxed{x^4 y^3}$

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(16) $(2^1 x^0 y^2)^{-3} \cdot 2^1 y^1 x^3 = 2^{-3} x^0 y^{-6} \cdot 2^1 y^1 x^3$

$= \dfrac{2^1}{2^3} \dfrac{x^0 x^3}{1} \dfrac{y^1}{y^6}$

$= \dfrac{1}{2^2} \dfrac{x^3}{1} \dfrac{1}{y^5} = \boxed{\dfrac{x^3}{4y^5}}$

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(18) $\dfrac{(x^{-3})^4 x^4}{2^1 x^{-3}} = \dfrac{x^{-12} x^4}{2^1 x^{-3}} = \dfrac{1}{2} \dfrac{x^4 x^3}{x^{12}}$

$= \dfrac{1}{2} \dfrac{x^7}{x^{12}} = \dfrac{1}{2} \dfrac{1}{x^5} = \boxed{\dfrac{1}{2x^5}}$

(20) $\dfrac{(2^1 x^3 z^2)^3}{x^3 y^4 z^2 x^{-4} z^3} = \dfrac{2^3 x^9 z^6}{x^3 y^4 z^2 x^{-4} z^3}$

$= \dfrac{2^3}{1} \dfrac{x^9 x^4}{x^3} \dfrac{1}{y^4} \dfrac{z^6}{z^2 z^3}$

$= \dfrac{8}{1} \dfrac{x^{13}}{x^3} \dfrac{1}{y^4} \dfrac{z^6}{z^5}$

$= \dfrac{8}{1} \dfrac{x^{10}}{1} \dfrac{1}{y^4} \dfrac{z^1}{1}$

$= \boxed{\dfrac{8 x^{10} z^1}{y^4}}$

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(22) $\dfrac{(2^1 h^1 j^2 k^{-2} \cdot h^4 j^{-1} k^4)^0}{2^1 h^{-3} j^{-4} k^{-2}} = \dfrac{2^0 h^0 j^0 k^0 h^0 j^0 k^0}{2^1 h^{-3} j^{-4} k^{-2}}$

$= \dfrac{1}{2} \dfrac{1}{h^{-3}} \dfrac{1}{j^{-4}} \dfrac{1}{k^{-2}}$

$= \dfrac{1}{2} \dfrac{h^3}{1} \dfrac{j^4}{1} \dfrac{k^2}{1}$

$= \boxed{\dfrac{h^3 j^4 k^2}{2}}$