Nickname: _____No.__ M2/___ ID: 1

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Worksheet 5.2 Properties of Exponents

Simplify. Your answer should contain only positive exponents.

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

A) $\dfrac{4x^2}{y^4}$ B) $\dfrac{1}{32x^{14}y^5}$

C) $\dfrac{x^{15}}{2y^{13}}$ D) $\dfrac{2y^6}{x^9}$

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

A) $\dfrac{4y^4}{x^8}$ B) $16x^{14}y^{10}$

C) $\dfrac{1}{x^2y^3}$ D) $\dfrac{x^6}{64y^9}$

3) $\left(\dfrac{2y^{-1}}{2x^{-3}y^2 \cdot xy^4}\right)^{-4}$

A) $\dfrac{y^{28}}{x^8}$ B) $\dfrac{1}{x^8y^{16}}$

C) $\dfrac{4}{x^{11}}$ D) $\dfrac{4}{x^6y^2}$

4) $\dfrac{a}{2b^{-4} \cdot (2b^{-2})^3}$

A) $16a^{16}b^9$ B) $\dfrac{8a^{18}}{b^9}$

C) $\dfrac{b^{10}a}{16}$ D) b^{14}

5) $\dfrac{y^{-1} \cdot x^3y^3 \cdot 2y^{-2}}{(x^2y^{-1})^3}$

A) $\dfrac{2y^3}{x^3}$ B) $\dfrac{x^5}{16y^7}$

C) $\dfrac{1}{x^{24}y^{12}}$ D) $\dfrac{4x^8}{y^{20}}$

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

A) $\dfrac{1}{y^8x^{24}}$ B) $\dfrac{1}{4y^{14}x^{15}}$

C) $2x^8y^5$ D) $\dfrac{8x^{11}}{y^2}$

7) $\left(\dfrac{2uv^4}{u^{-2}v^4 \cdot v^4}\right)^2$

A) $\dfrac{4u^6}{v^8}$ B) $2v^3u^3$

C) $\dfrac{1}{4v^{14}u^5}$ D) $\dfrac{2u^{13}}{v^4}$

8) $\dfrac{2vu^{-2} \cdot u^4v^{-3}}{(2u^{-1}v^{-1})^{-3}}$

A) $\dfrac{16}{v^5u}$ B) $\dfrac{8v^{17}}{u^2}$

C) $\dfrac{1}{2uv^8}$ D) $\dfrac{16v^{20}}{u^{12}}$

9) $\dfrac{(2x^4y^4 \cdot x^2y^{-1})^4}{x^2}$

A) $\dfrac{x^{12}}{8y^6}$ B) $\dfrac{8y^6}{x^4}$

C) $2y^4x^{13}$ D) $16x^{22}y^{12}$

10) $\left(\dfrac{xy^2 \cdot x}{(xy^2)^{-2}}\right)^3$

A) $256x^{16}y^{12}$ B) y^3x^9

C) $x^{12}y^{18}$ D) $\dfrac{x^2}{2y^7}$

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11) $\left(\frac{2xy^2}{x^4y^2 \cdot yx^3}\right)^3$

A) $\frac{1}{4x^5y^2}$ B) $\frac{y^{16}x^4}{256}$

C) $\frac{8}{x^{18}y^3}$ D) $\frac{y^{15}}{x^3}$

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

A) $\frac{32m^{12}}{n^6}$ B) n^7m^6

C) $\frac{4m^{10}}{n}$ D) $\frac{2}{n^5m^{10}}$

13) $\frac{2xy^4 \cdot \left(2yx^4\right)^2}{(xy)^{-2}}$

A) $\frac{2}{x^7y^4}$ B) $\frac{4y^6}{x^5}$

C) $\frac{x^{16}}{64y^8}$ D) $8x^{11}y^8$

14) $\frac{\left(2uv^{-3}\right)^2}{2v^{-2} \cdot 2u^{-4}v^4}$

A) $\frac{u^6}{v^8}$ B) $\frac{1}{2v^3u^{12}}$

C) $v^{24}u^{20}$ D) $\frac{u^{10}}{8v^3}$

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

A) $\frac{1}{2a^{12}b^4}$ B) $\frac{2b^{22}}{a^7}$

C) $\frac{1}{4a^8}$ D) $\frac{16a^{28}}{b^{32}}$

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

A) $m^{20}n^9$ B) $\frac{1}{2n^2m^{16}}$

C) $\frac{32n^6}{m^5}$ D) $\frac{m^3}{n^6}$

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

A) $\frac{4}{x^8y^8}$ B) $\frac{8y^6}{x^3}$

C) $\frac{y^{18}}{8x^{12}}$ D) $\frac{y^8}{2x^3}$

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

A) $\frac{1}{8x^6y^9}$ B) $\frac{1}{2x^3y^8}$

C) y^{15} D) $\frac{x^{10}}{2y^4}$

19) $\frac{\left(ab^{-3}\right)^{-1} \cdot 2b^2}{a^4}$

A) $\frac{b^3}{a^3}$ B) $\frac{2b^5}{a^5}$

C) $2a^7b^4$ D) $\frac{a^3}{4b^4}$

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

A) $\frac{4y}{x^{18}}$ B) $\frac{4y^2}{x^{20}}$

C) $\frac{4y^8}{x^5}$ D) $\frac{2x^3}{y^5}$

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