

POWER UP

Warm Up Questions

1. $(r^2s^4)^{-3} \times 5r^3s^{-2}$

2. $\left(\frac{3m^3 \times 4my^3}{6m^3y^{-3}} \right)^4$

3. $\left(\frac{5^2z^3 \times 5zy^3}{5z^3(y^4)^{-2}} \right)^2$

$$(r^2s^4)^{-3} \times 5r^3s^{-2}$$

$$1r^{-6}s^{-12} \times 5r^3s^{-2}$$

$$= 5r^{-3}s^{-14}$$

$$= \frac{5}{r^3s^{14}}$$

$$\left(\frac{3m^3 \times 4m^1y^3}{6m^3y^{-3}} \right)^4$$

$$4 - 3 = 1$$

$$3 + 3 = 6$$

$$\left(\frac{12m^4y^3}{6m^3y^{-3}} \right)^4$$

$$\left(2m^1y^6 \right)^4$$

$$2^4 m^4 y^{24}$$

$$16m^4y^{24}$$

3++8

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

$$\left(\frac{5^3 z^4 y^3}{5 z^3 y^{-8}} \right)^2$$

$$(5^2 z^1 y^{11})^2$$

$$5^4 z^2 y^{22}$$

$$625 z^2 y^{22}$$

$$\left(\frac{125 z^4 y^3}{5 z^3 y^{-8}} \right)^2$$

$$(25 z^1 y^{11})^2$$

$$25^2 z^2 y^{22}$$

$$625 z^2 y^{22}$$

$$\begin{aligned} 1). \quad & y^1 x^2 \times x^{-2} y^4 \\ & x^0 y^5 \\ & 1 y^5 \\ & = y^5 \end{aligned}$$

$$2. \quad 1m^{-2} \times 3m^4n^4$$
$$3m^2n^4$$

$$3. \quad 3x^{-3}y^3 \times 3x^0y^0$$

$$9x^{-3}y^3$$

$$\frac{9y^3}{x^3}$$

$$4) \quad 3x^{-2}y^{-4} \times 3x'$$

$$9x^{-1}y^{-4}$$

$$\frac{9}{x'y^4}$$

$$\begin{aligned} 5) & \quad (3x^4y^0)^4 \\ & = 3^4x^{16}y^0 \\ & = 3^4x^{16}(1) \\ & = 3^4x^{16} \\ & = 81x^{16} \end{aligned}$$

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$$6) \quad (2x^{-1}y^{-3})^4$$

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

$$\frac{2^4}{x^4 y^{12}}$$

$$= \frac{16}{x^4 y^{12}}$$

$$\begin{aligned} 7) \quad & (3^1 v^4)^{-2} \\ & \begin{array}{c} \textcircled{3^{-2}} \textcircled{v^{-8}} \\ \hline 3^2 v^8 \\ \hline 9 v^8 \end{array} \end{aligned}$$

$$8) \quad (4^1 u^{-1} v^{-1})^0 \\ = 1$$

$$\begin{array}{l} 9. \\ -2 + -4 \\ -2 + 4 \\ 0 + 4 \end{array} \quad \frac{4x^{-2}y^0}{x^4y^4}$$
$$4x^{-6}y^{-4}$$
$$= \frac{4}{x^6y^4}$$

10) $3-2=$

$$\frac{4x^3}{3x^2y^3}$$
$$\frac{4x^1}{3y^3}$$

11) $\frac{3y^4}{x^4}$

$$\begin{array}{r}
 12) \\
 1 + + 2 \\
 -3 + -1 \\
 \hline
 \end{array}$$

$$\frac{x^1 y^{-3}}{2 y^1 x^{-2}}$$

$$\frac{x^3 y^{-4}}{2}$$

$$\frac{x^3}{2 y^4}$$

13)

$$\frac{x^{-4}y^{-4}}{x^3}$$

$-4 + 3$

$$\frac{x^{-7}y^{-4}}{1}$$
$$x^7y^4$$

$$\begin{aligned} 20) \quad & X^3 \times X^{-2} y^3 \times (X^{-4} y^{-3})^2 \\ & X^{\textcircled{3}} \times X^{\textcircled{-2}} y^{\textcircled{3}} \times X^{\textcircled{-8}} y^{\textcircled{-6}} \\ & = \frac{X^{-7} y^{-3}}{X^7 y^3} \end{aligned}$$

$$2a) \quad \frac{4xy^0}{4x^0y^0 \times 2x^{-1}y^{-4}}$$

$$\begin{array}{l} 1+1 \\ 0+4 \end{array} \quad \frac{4xy^0}{8x^{-1}y^{-4}}$$

$$\frac{1x^2y^4}{2y^4}$$