WARM UP: p. 14

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

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

$\dfrac{4x^6 y^{-6}}{9z^2}$

$\boxed{\dfrac{4x^6}{9z^2 y^6}}$

p. 15

1) $\left(x^{\frac{2}{3}}\right)^{\frac{-3}{1}}$

$\dfrac{2}{3} \cdot \dfrac{-3}{1} = \dfrac{-6}{3}$

$1X^{-2}$

$\boxed{\dfrac{1}{x^2}}$

2) $\left(+27x^{-9}\right)^{\frac{1}{3}}$ $\dfrac{-9}{1} \cdot \dfrac{1}{3}$

$27^{\frac{1}{3}} (x^{-9})^{\frac{1}{3}}$

$3(x^{-3})$

$\boxed{\dfrac{3}{x^3}}$

3) $\left(\dfrac{x^{\frac{1}{4}}}{y^{-\frac{3}{4}}} \right)^{12}$

4) $\left(x^{\frac{1}{2}} y^{-\frac{2}{3}} \right)^{-6}$

White Board Activity

Simplify:

$$\left(x^{\frac{8}{3}}\right)^{-3}$$

$$\frac{8}{3} \cdot \frac{-3}{1} = \frac{-24}{3} = -8$$

$$x^{-8}$$

$$\boxed{\frac{1}{x^8}}$$

Simplify:

$$\left(x^{\frac{2}{3}}\right)^{-6}$$

$$\frac{2}{3} \cdot \frac{-6}{1} = \frac{-12}{3}$$

$$x^{-4}$$

$$\boxed{\frac{1}{x^4}}$$

Simplify:

$$\left(x^{\frac{3}{1}}\right)^{\frac{2}{3}}\left(x^{\frac{3}{1}}\right)^{\frac{-2}{3}}$$

$$\frac{3}{1}\cdot\frac{2}{3}=\frac{6}{3}=2 \qquad \frac{3}{1}\cdot\frac{-2}{3}=\frac{-6}{3}=-2$$

$$x^2\,\boxed{x^{-2}} = x^0 = \boxed{1}$$

$$\frac{x^2}{x^2} = \boxed{1}$$

Simplify:

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

$$-\frac{1}{3}\cdot\frac{3}{2}=\frac{-3}{6}=\boxed{-\frac{1}{2}}$$

$$x^{-\frac{1}{2}} \quad y^{\frac{9}{2}} \quad x^{-1}$$

$$\frac{x^1 y^{\frac{9}{2}}}{x^{\frac{1}{2}}}$$

$$x^{\frac{1}{2}} y^{\frac{9}{2}}$$