

Narm-Up

1/4/2018

Simplify each expression.

1.  $4x^2y \cdot y^2 \cdot 3x^5$

2.  $mk(2m^4w^3)^2$

3.  $\frac{p^{11}}{p^2}$

4.  $\frac{12tf^7}{4tf^6}$

1.  $4x^2y \cdot y^2 \cdot 3x^5$

$$\boxed{12x^7y^3}$$

2.  $mk(2m^4w^3)^2$

$$mk(4m^8w^6)$$

$$\boxed{4m^9k^7}$$

3.  $\frac{p^{11}}{p^2}$

$$\boxed{p^9}$$

4.  $\frac{12tf^7}{4tf^6}$

$$\boxed{3f}$$

# Properties of Exponents

- Multiplication Property (add exp.)
- Power of a Power Property (multiply exp.)
- Division Property (subtract exp.)
- Zero Property
- Negative Property

## Division Property of Exponents

$$\frac{a^m}{a^n} = a^{m-n}$$

When dividing exponents subtract the denom. from the numer.

Ex.  $\frac{x^6}{x^4}$

$$\begin{array}{c} x \cdot x \cdot x \cdot x \cdot x \cdot x \\ x \cdot x \cdot x \cdot x \end{array}$$

$$\boxed{x^2}$$

$$\frac{15m^3p^4}{10mp^4}$$

$$\frac{15 \cdot \cancel{m} \cdot \cancel{m} \cdot \cancel{m} \cdot \cancel{p^4}}{10 \cdot \cancel{m} \cdot \cancel{p^4}}$$

$$\boxed{\frac{3m^2}{2}}$$

# Practice

$$\text{Ex. 1 } \frac{6w^3}{2w}$$

$$\boxed{3w^2}$$

$$\text{Ex. 2 } \frac{10x^8y^8}{8y^3}$$

$$\boxed{\frac{5x^8y^5}{4}}$$

$$\text{Ex. 3 } \frac{4py^4(2p^2)}{8p^3y^3}$$

$$\frac{8p^3y^4}{8p^3y^3} = \boxed{y}$$

$$\text{Ex. 4 } \frac{(5c^2d^3)^2}{30c^3d^5}$$

$$\frac{25c^4d^6}{30c^3d^5} = \boxed{\frac{5cd}{6}}$$

$$\text{Ex. 5 } \frac{7x^4(2xy)^2}{10x^3}$$

$$\frac{7x^4(4x^2y^2)}{10x^3}$$

$$\frac{28x^6y^2}{10x^3}$$

$$\boxed{\frac{14x^3y^2}{5}}$$

$$\text{Ex. 6 } \frac{33d^{15}w^9(wd^2)^3}{11d^4(w^2)^4}$$

$$\frac{33d^{15}w^9(w^3d^6)}{11d^4(w^8)}$$

$$\frac{33d^{21}w^{12}}{11d^4w^8}$$

$$\boxed{3d^{17}w^4}$$