Dividing with Exponents

Section 8.3

Rules

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

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

When you have the same base on the top and bottom of a fraction, subtract the exponents

Distribute the power to the top and bottom of the fraction

Examples

- $\dfrac{x^5}{x^3}$

- $\dfrac{y^6}{y^3}$

- $\dfrac{x^4 y^7}{x y^5}$

- $\dfrac{x^4}{x^7}$

Examples *(cont'd)*

- $\dfrac{x^4 y^8 z^8}{x^5 y^2 z^3}$

- $\dfrac{7^4}{7^2}$

- $\dfrac{8}{8^3}$

- $\dfrac{6^5 6^4}{6^3}$

Examples *(cont'd)*

- $\dfrac{x^7 x^3}{x^{-4}}$

- $\dfrac{7^4}{7^2}$

- $\left(\dfrac{a^4}{b^8}\right)^2$

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

Challenge Problems

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

$$\frac{2x^2y}{3x} \cdot \frac{9xy^2}{y^4}$$