

# Exponent Property of Division

**rule**:  $\frac{x^m}{x^n} = x^{m-n}$  subtract exponents

**why it works**:  $\frac{x^7}{x^3} = \frac{x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x}{x \cdot x \cdot x} = \frac{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x \cdot x \cdot x \cdot x}{\cancel{x} \cdot \cancel{x} \cdot \cancel{x}} = x^4$   
 $\& 7-3=4 \checkmark$   
 (can cancel)

**examples**:

1.  $\frac{x^9}{x^6} = x^3$

2.  $\frac{x^5}{x^7} = x^{-2}$   
 OR  $\frac{1}{x^2}$

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

*tomorrow you'll learn we don't like negative exp.*

*separate by piece*

4.  $\frac{(r^2 t)^3 \cdot r t^2}{r^2 t} = \frac{r^4 t^3 \cdot r t^2}{r^2 t} = \frac{r^7 t^5}{r^2 t} = r^5 t^4$

5.  $\frac{30 x^2 y^4 z^3}{60 x y^5 z^9} = \frac{1}{2} x y^{-1} z^{-6}$  OR

$\left( \frac{1x}{2y z^6} \right)$

*this is the answer we want, but will learn more tomorrow*