

# Algebra 1 2/16/2012

## 7.1

$$5^0 = 1$$

\* anything to the zero power is one.

$$(2/3)^0 = 1$$

$$x^0 = 1$$

$$(5x^2y^3z^{-1})^0 = 1$$

$$5x^0 = 5 \cdot 1 = 5$$

$$3^2 5^0 = 9 \cdot 1 = 9$$

$$3^{-1} = 1/3$$

$$3^1 = 3/1$$

\* negative exponents create a reciprocal

$$\frac{1/2 x}{1/2} = \frac{3}{1/2}$$

\* Divide by a fraction means multiply by the reciprocal

$$2/1 (1/2) x = 3 (2/1)$$

$$2/2 x = 6/1$$

$$1x = 6$$

$$x = 6$$

$$\begin{aligned} & 5a^3 b^{-2} \\ &= 5^1 \cdot a^3 \cdot b^{-2} \\ &= 5/1 \cdot a^3/1 \cdot b^{-2}/1 \\ &= 5/1 \cdot a^3/1 \cdot 1/b^2 \\ &= 5a^3/b^2 \quad \text{Simplified} \end{aligned}$$

$$\begin{aligned}
 n^{-4} w^0 &= n^{-4}/1 \cdot w^0/1 \\
 &= 1/n^4 \cdot 1/1 \\
 &= 1/n^4
 \end{aligned}$$

$$\begin{aligned}
 4/x^{-3} &= 4/1 \cdot x^3/1 = 4x^3/1
 \end{aligned}$$

~~WRONG~~

$$\begin{aligned}
 \cancel{5/x^{-4}} &= \cancel{5/x^{-4}} \cdot 1/x^{-4} = 5x^{-4} \\
 &= \cancel{5/x^{-4}} \cdot x^4/1 = 5/1 \cdot x^{-4}/1 = 5/1 \cdot 1/x^4 \\
 &= 5/x^4
 \end{aligned}$$

$$\begin{aligned}
 3^{-2}/n &= 3^{-2}/1 \cdot n/1 \\
 &= 1/3^2 \cdot n/1 \\
 &= 3^{-2}/1 \cdot 1/n = 1/3^2 \cdot 1/n = 1/3^2 n = 1/9n
 \end{aligned}$$

## Practice

①  $5/5^2$

$$\begin{aligned}
 &5/1 \cdot 1/5^2 \\
 &5/1 \cdot 5^2/1 \\
 &5/1 \cdot 25/1 \\
 &125/1
 \end{aligned}$$

④  $1/a^{-1}/1$

$$\begin{aligned}
 &1/1a^{-1} \\
 &1/1a
 \end{aligned}$$

⑤  $-(15p)^0$

$$\begin{aligned}
 &-1 \cdot 1 \\
 &= -1
 \end{aligned}$$

②  $3/6^{-1}$

$$\begin{aligned}
 &3/1 \cdot 1/6^{-1} \\
 &3/1 \cdot 6/1 \\
 &18/1
 \end{aligned}$$

Bonus:

$$\begin{aligned}
 &\frac{-b^1 a^{-2} (bc)^2}{a^{-4}} \\
 &= \frac{-b (bc)^2 a^4}{a^{-2}} \\
 &= \frac{-b^2 c^2 a^4}{a^2}
 \end{aligned}$$

③  $-(5)^{-2}$

$$\begin{aligned}
 &-1(5)^{-2} \\
 &-1 \cdot 1/5^2 \\
 &= -1/25
 \end{aligned}$$

7.3

$$3^2 \cdot 3^5$$

$$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$$

$$3^7$$

2187

$$5^2 \cdot 5^3$$

$$5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$$

$$5^5$$

3125

\*  $x^n \cdot x^m = x^{n+m}$   
When multiplying like  
bases, combine  
exponents.