

October 6, 2015  
 \* Quiz #7 - Wednesday  
 5.1 & 5.2

Oct 6-9:01 AM

5.5 Laws of Exponents  
 $a^n$  ← Exponent  
 ↑  
 Base  
 Meaning of an Exponent  
 "n" factors of the base "a"  
 ↓  
 Multiplication  
 $x^3 = x \cdot x \cdot x$

Oct 6-9:07 AM

Law #1  
 $x^2 \cdot x^3$   
 same base  
 meaning:  $x \cdot x \cdot x \cdot x \cdot x = x^5$   
 $x^{2+3} = x^5$   
 ↑  
 Common base

Oct 6-9:15 AM

$2x^4 \cdot -3x^b$   
 $(2x^4)(-3x^b)$   
 $[(2)(-3)] [x^4][x^b]$   
 $-6x^{10}$  same base

Oct 6-9:20 AM

$(a^2 b^3 c^2)(a^1 b^2 c^5)$   
 $a^2 b^5 c^7$

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Law #2  
 same base  
 $\frac{x^3}{x^2} = \frac{\boxed{x} \cdot \boxed{x} \cdot x}{\boxed{x} \cdot \boxed{x}}$   
 $\downarrow$   
 $2 \cancel{x}$   
 $= 1 \cdot 1 \cdot x = x^1$   
 $x^{3-2} = x^1 = x$

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

$$= x^2 y$$

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$$\frac{x^2}{x^3} = \frac{\boxed{x} \cdot \boxed{x}}{\boxed{x} \cdot \boxed{x} \cdot \boxed{x}} = 1 \cdot 1 \cdot \frac{1}{x}$$

$$x^{2-3} = -1 = \boxed{x^{-1}} = \frac{1}{x}$$

Oct 6-9:31 AM

$$\frac{s^5 t^6}{s^8 t^{10}} = s^{5-8} t^{6-10}$$

$$= s^{-3} t^{-4}$$

*\* Don't leave as negative exponents!*

$$= \frac{1}{s^3} \cdot \frac{1}{t^4}$$

$$= \frac{1}{s^3 t^4}$$

Oct 6-9:35 AM

Law #2. a

\* Negative Exponent Rule

$$\frac{a^{-m}}{1} = \frac{1}{a^{+m}}$$

$$5^{-3} = \frac{1}{5^3} = \frac{1}{125}$$

Alternate

$$\frac{1}{a^{-m}} = \frac{a^{+m}}{1} = a^m$$

$$\frac{1}{3^{-2}} = 3^2 = 9$$

Oct 6-9:37 AM

Law #3

$$(x^3)^2 = (x^3) \cdot (x^3)$$

$$= \underbrace{x \cdot x \cdot x}_{\text{Base}} \cdot x \cdot x \cdot x$$

$$= x^6$$

Oct 6-9:40 AM

$$(y^{-3})^{-4} = y^{12}$$

Oct 6-9:42 AM