

March 22, 2017

\* Do 5.4 #1 - #36 and 3

5.5 Laws of Exponents

$a^n$  ← Exponent  
 ↑ Base  
 $a \cdot a \cdot a \dots a$   
 n factors of a  
 ↳ meaning

$5^3 = 5 \cdot 5 \cdot 5$   
 $= 25 \cdot 5$   
 $= 125$

Mar 22-9:00 AM

n can be  $N, W, Z, Q$

Laws (Rules)

① Product Rule

$x^2 \cdot x^3$   
 $x \cdot x \cdot x \cdot x \cdot x = x^5$   
 Same base

\* Same base, add exponents  
 $x^2 \cdot x^3 = x^{2+3} = x^5$

Mar 22-9:30 AM

② Power Rule

$(x^3)^2 = x^3 \cdot x^3$   
 $= x \cdot x \cdot x \cdot x \cdot x \cdot x$   
 $= x^6$   
 ↑ Base

\* Same base, multiply the exponents  
 $(x^3)^2 = x^6$

Mar 22-9:38 AM

③ Quotient Rule

same base  $\left\{ \frac{x^2}{x^3} = \frac{x \cdot x}{x \cdot x \cdot x} = \frac{1}{x} = x^{-1} \right.$

\* Same base, subtract denominator's exponent from numerator's exponent

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

$\frac{x^4}{x^2} = \frac{x \cdot x \cdot x \cdot x}{x \cdot x} = x^2$   
 $\frac{x^4}{x^2} = x^{4-2} = x^2$

Mar 22-9:41 AM