March 23, 2016

5.5 Laws of Exponents

$x^2y^3 \cdot xy^2 = x^{2+1=3} \cdot y^{3+2=5}$

$= x^3y^5$

Same base? yes, $\Rightarrow xy$

$x \cdot x \cdot y \cdot y \cdot y \cdot x \cdot y \cdot y$ meaning

x^3y^5

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$a^{12} \cdot a^{30}$

$= a^{12+30=42}$

$= a^{42}$

$x^2 \cdot x^3$

$xx \cdot x \cdot xx = x^5$

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Law #1 Product Rule

$x^3 \cdot x^2 = x^{3+2=5} = x^5$

Law #2 Power Rule

$(x^2)^3$ ← exponent

Base

$= x^2 \cdot x^2 \cdot x^2$

$= x \cdot x \cdot x \cdot x \cdot x \cdot x$ meaning

$= x^6$

$(x^2)^3 = x^{2 \cdot 3 = 6}$

$= x^6$

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Law #3 Quotient Rule

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

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

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$\frac{x^6y^{10}}{x^4y^3} = x^{6-4=2} \cdot y^{10-3=7}$

$= x^2y^7$

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Do & Complete

5.1, 5.2, 5.4

#1 – #45 m3

#1 – #60 m3

#1 – #36 m3

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