

March 25, 2016
 * Exam #2 - Wednesday
 March 30, 2016
 2.5, 3.1, 5.1, 5.2, 5.4, 5.5, 5.6

Mar 25-9:04 AM

5.5 Laws of Exponents

① Product Rule
 $a^m \cdot a^n = a^{m+n}$
Same Base
 $y^3 \cdot y^5 = y^{3+5} = y^8$

② Power Rule
 $(a^m)^n = a^{m \cdot n}$
Base
 $(x^8)^3 = x^{8 \cdot 3} = x^{24}$

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③ Quotient Rule
same Base $\left\{ \frac{a^m}{a^n} = a^{m-n} \right.$
 $\frac{x^8}{x^5} = x^{8-5} = x^3$

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$\frac{x^2}{x^3} = \frac{\boxed{x} \cdot \boxed{x} \cdot 1}{\boxed{x} \cdot \boxed{x} \cdot x} = 1 \cdot 1 \cdot \frac{1}{x} = \frac{1}{x}$
using the meaning
 $\frac{x^2}{x^3} = x^{2-3} = x^{-1}$

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Negative Exponents

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

② $\frac{1}{a^m} = \frac{a^{-m}}{1}$

long way
 $\frac{y}{x^{-3}} = \frac{\frac{y}{1} \cdot \frac{1}{x^3}}{\frac{1}{x^3}} = \frac{y}{1} \cdot \frac{1}{x^3} = yx^3$
apply exp rule

short way
 $\frac{y}{x^{-3}} = \frac{y \cdot x^3}{1} = yx^3$

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Do 5.5 #1 - ~~157~~ m3
 *

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5.6 Multiplication of Polynomials

$$(4x^3)(-2x^6)$$

$$= 4 \cdot x^3 \cdot (-2) \cdot x^6$$

$$= (4) \cdot (-2) \cdot \underbrace{x^3 \cdot x^6}_{\text{same base}}$$

$$= (-8) \cdot x^9$$

$$= -8x^9$$

Mar 25-9:35 AM

$$(2x+5)^2 = (2x+5) \cdot (2x+5)$$

$$= 4x^2 + 10x + 10x + 25$$

collect like terms

$$= 4x^2 + 20x + 25$$

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Due on Monday

$$(3x-2)^4$$

Mar 25-9:46 AM

$$(6x^2 - 5x + 8) \cdot (-4x^2 + 2x - 3)$$

$$-24x^4 + 12x^3 - 18x^2 + 20x^3 - 10x^2 + 15x$$

$$- 32x^2 + 16x - 24$$

$$-24x^4 + 32x^3 - 60x^2 + 31x - 24$$

Mar 25-9:47 AM

$$(3x+2)^4 = [(3x+2)(3x+2)](3x+2)(3x+2)$$

$$= 9x^2 + 6x + 6x + 4$$

$$= (9x^2 + 12x + 4)(3x+2)$$

$$= 27x^3 + 18x^2 + 36x^2 + 24x + 12x + 8$$

$$= (27x^3 + 54x^2 + 36x + 8)(3x+2)$$

$$= 81x^4 + 54x^3 + 162x^3 + 108x^2$$

$$+ 108x^2 + 72x + 24x + 16$$

$$= 81x^4 + 216x^3 + 216x^2 + 96x + 16$$

Mar 25-10:00 AM

$$6x + 6x = x(6+6) = x \cdot 12 = 12x$$

vs

$$6x \cdot 6x = 6 \cdot x \cdot 6 \cdot x$$

$$= 6 \cdot 6 \cdot x \cdot x$$

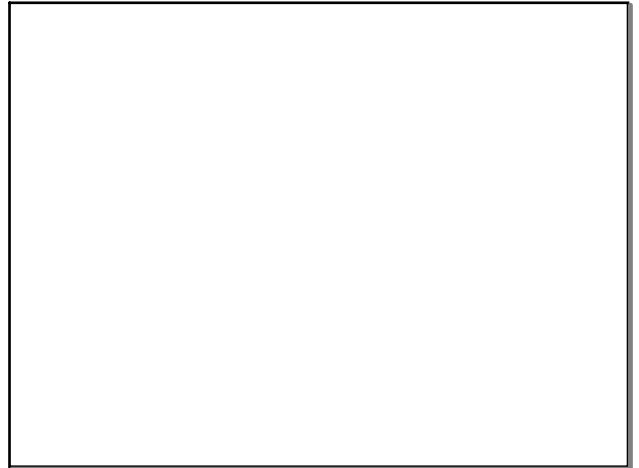
$$= 36x^2$$

Mar 25-10:02 AM

$$(5x + 3)^5$$

Do by Monday!

Mar 25-10:13 AM



Mar 25-10:16 AM