October 24, 2017

* Quiz #6 - Tomorrow
  - 5.1 & Function Handout

Oct 24-9:02 AM

5.4 Addition of Polynomials

#11) $(12a^5 - 6a - 10a^3) - (10a - 2a^5 - 14a^4)$

Steps
1. Clearing the parentheses by Distribution
2. Combine like terms
3. Write Polynomial in descending order of Powers

$12a^5 - 6a - 10a^3 - 10a + 2a^5 + 14a^4$

$12a^5 + 2a^5 - 6a - 10a - 10a^3 + 14a^4$

$(12+2)a^5 + (-6-10)a - 10a^3 + 14a^4$

$14a^5 - 16a - 10a^3 + 14a^4$

$\boxed{14a^5 + 14a^4 - 10a^3 - 16a}$

Degree: 5

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Doing 5.2 & 5.4
1-60 m3 1-36 m3

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5.5 Laws of Exponents

* What is the meaning of an Exponent?

$a^n = \underbrace{a \cdot a \cdot a \cdots a}_{n \text{ factors of } a}$

a: Base; n: exponent

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$x^3 = x \cdot x \cdot x$

Base; meaning of x^3

① Product Rule

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

like bases

* With like bases, add the exponents.

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

$= x^5$

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② Power Rule

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

Base

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

$= x^6$

* A base raised to a power that is raised to a power we multiply the exponents.

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

$= x^6$

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③ Quotient Rule

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

"1" "1"

$$= 1 \cdot 1 \cdot x = x^1 = x$$

* Given a fraction, subtract the denominator's exponent from the numerator's exponent.

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

$$= x$$

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Examples

① $a^6 \cdot a^9 = a^{6+9=15}$

$= a^{15}$

② $y^2 \cdot y = y^3$

③ $(x^9)^4 = x^{9 \cdot 4 = 36}$

$= x^{36}$

④ $\frac{x^{18}}{x^6} = x^{18-6=12}$

$= x^{12}$

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