5.1 Notes

Wednesday, June 19, 2019 8:45 AM

① $x^4 \cdot x^3 = x^{4+3} = x^7$ (4 x's · 3 x's = 7 x's; base #'s same)

$$x^A \cdot x^B = x^{A+B}$$

$32 \cdot 4 = 128$

$2^5 \cdot 2^2 = 2^{5+2} = 2^7 = 128$ (base #s same)

coefficients

$4y^3 \cdot 8y^6 = 32y^{3+6} = 32y^9$

$4 \cdot 8 = 32$

② $\frac{x^5}{x^3} = x^{5-3} = x^2$ (base #'s match)

$$\frac{x^A}{x^B} = x^{A-B}$$

$\frac{5x^6}{10x^2} = \frac{1}{2}x^{6-2} = \frac{1}{2}x^4$ (reduce)

③ $(x^4)^5 = x^{4 \cdot 5} = x^{20}$ (4 x's · 5 groups = 20 x's)

$$(x^A)^B = x^{A \cdot B}$$

$(3c^6)^2 = 3^2 c^{6 \cdot 2} = 9c^{12}$ NOT $6c^{12}$ NOT $3c^{12}$

$3(c^6)^2 = 3c^{12}$

④ $(x^3 \cdot y^5)^4 = x^{3 \cdot 4} \cdot y^{5 \cdot 4} = x^{12} \cdot y^{20}$

$$(x^A \cdot y^B)^C = x^{A \cdot C} \cdot y^{B \cdot C}$$

⑤ $\left(\frac{x^3}{y^5}\right)^4 = \frac{x^{3 \cdot 4}}{y^{5 \cdot 4}} = \frac{x^{12}}{y^{20}}$

$$\left(\frac{x^A}{y^B}\right)^C = \frac{x^{A \cdot C}}{y^{B \cdot C}}$$

⑥ Zero Exponent: $x^0 = 1$ $\quad 4^0 = 1$

$$8x^0 = 8$$

$$8 \cdot 1$$

⑦ Negative Exponents:

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

(denominator)

(numerator)

$$\frac{3x^{-2}}{5} = \frac{3}{5x^2}$$

(both)

$$\frac{6x^{-4}}{11y^{-1}} = \frac{6y}{11x^4}$$

(both)

#1: You may NOT have any negative exponents in your solution

#2: To change a negative exponent to a positive exponent ... MOVE IT TO THE OTHER PART OF THE FRACTION