

BE-Alg 1 | TUESDAY 11-24-09

① From memory, list the 4
exponent rules covered so far.

Homework review: Pg 421 #4-6, 14-19

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The Division Rules works great
when the top exponent is bigger
than the bottom exponent.

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

BUT WHAT IF THE top and bottom
EXONENTS ARE THE SAME?

$$\textcircled{\text{EX}} \quad \frac{x^5}{x^5} = x^{5-5} = x^0$$

$\Downarrow$
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SO ANYTHING RAISED TO
THE ZERO POWER IS 1.
(EXCEPT $0^0 = 0$)

ZER $a^0 = 1$ EXCEPT $0^0 = 0$

$$\textcircled{\text{EX}} \quad (8xyz^9a^4b^9)^0 = \boxed{1}$$

$$\textcircled{\text{EX}} \quad (\text{AARDVARK})^0 = \boxed{1}$$

$$\textcircled{\text{EX}} \quad \frac{9x^2y^0}{2x^0} = \boxed{\frac{9x^2}{2}}$$

WHAT if the bottom exponent is bigger than the top?

$$\textcircled{\text{EX}} \quad \frac{x^3}{x^5} = \frac{xxx}{xxxxx} = \frac{1}{x^2}$$

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

$$\text{So } x^{-2} = \frac{1}{x^2}$$

$$\text{NER } a^{-N} = \frac{1}{a^N}$$

$$\textcircled{\text{EX}} \quad 3^{-2} = \frac{1}{3^2} = \frac{1}{9}$$

$$\textcircled{\text{EX}} \quad 4^{-1} = \frac{1}{4^1} = \frac{1}{4}$$

$$\textcircled{\text{EX}} \quad \frac{x^4}{x^{12}} = x^{-8} = \frac{1}{x^8}$$



NEVER leave A Negative
Exponent in your answer.

Also NOTE:

$$\frac{1}{3^{-2}} = \frac{1}{\frac{1}{3^2}} = \frac{1}{\frac{1}{9}} = 1 \cdot \frac{9}{1} = 9$$

$$\text{So } \frac{1}{3^{-2}} = 3^2 = 9$$

$$\text{NER } a^{-N} = \frac{1}{a^N} \quad \text{AND} \quad \frac{1}{a^{-N}} = a^N$$

$$\textcircled{\text{Ex}} \quad \frac{1}{4^{-1}} = 4^1 = 4$$

$$\textcircled{\text{Ex}} \quad \frac{1}{x^{-6}} = x^6$$

• Homework - Memorize the 6 exponent rules!

Tip: make 6 flash cards