Algebra I Weds 1-23-13 Class Notes

Consequences of DR ⇒

- If top exponent is > bottom, No problem

  (Ex) $\frac{x^8}{x^3} = x^{8-3} = x^5$

- What if top & bottom exponents were the same? (Ex)

$$1 = \frac{x^8}{x^8} = x^{8-8} = x^0$$

ZER $a^0 = 1$ * except $0^0 = 0$

(Ex) $(2x^2)^0 = 1$

(Ex) $(95x^8y^3z^4)^0 = 1$

(Ex) $(2x^0y^3)^2 = 2^2y^6 = 4y^6$

- What if bottom exponent was bigger?

(ex)

$$x^{-5} = \frac{x^3}{x^8} = \frac{xxx}{xxxxxxxx} = \frac{1}{x^5}$$

(ex) $x^{-2} = \frac{1}{x^2}$

(ex) $6^{-2} = \frac{1}{6^2} = \frac{1}{36}$

(ex) $2^{-1} = \frac{1}{2}$

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

$$\frac{1}{\frac{1}{x^3}}$$

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

(39) $$\frac{-2x^{-2}}{-2x^{-1} \cdot 2x \cdot (x^4)^2}$$

$$\frac{2x^2}{4x^{-1}\,x^1\,x^8}$$

$$\frac{2x^2}{4x^8} = \frac{1x^{-6}}{2}$$

$$= \boxed{\frac{1}{2x^6}}$$

(42) $$\left(\frac{N^4 N^4}{N^4}\right)^2 = \boxed{N^8}$$

Worksheet Practice

(31) $(2x^2)^2 = \boxed{4x^4}$

(35) $(-N^3)^3 = \boxed{-N^9}$

(37) $\left(\frac{2x^3 \cdot 2x^2}{-2x^3}\right)^{-3}$

$\left(\frac{4x^5}{-2x^3}\right)^{-3}$

$\left(-\frac{2x^2}{1}\right)^{-3}$

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

$2^3 = 2 \cdot 2 \cdot 2$

$= \boxed{-\frac{1}{8x^6}}$

(49) $\dfrac{-2x^3}{-2x^2 \cdot (x^2)^4 \cdot 2x^0}$ (1)

$\dfrac{(-)}{(-)} = (+)$

$\dfrac{2x^3}{4x^2 x^8}$

$\dfrac{2x^3}{4x^{10}} = \dfrac{1x^{-7}}{2}$

$= \boxed{\dfrac{1}{2x^7}}$

(64)

$$\frac{r^2}{(r^4)^{-1} \cdot (2r^2)^{-3}}$$

$$\frac{r^2 r^4 (2r^2)^3}{1}$$

$2^3 = 2 \cdot 2 \cdot 2$

$$r^6 \, 8 r^6 = \boxed{8r^{12}}$$