Algebra 1 | Tues. 1-22-13 | Class Notes

Exponent Rules — 6 basic rules.

$base^{exponent}$

mult. the base "by itself" the exponent number of times.

$2^3 = ?$ $\quad 2 \cdot 2 \cdot 2 = 8$

$3^2 = ?$ $\quad 3 \cdot 3 = 9$

$4^2 = ?$ $\quad 4 \cdot 4 = 16$

$5^4 = ?$ $\quad 5 \cdot 5 \cdot 5 \cdot 5 = 625$

$6^1 = ?$ $\quad 6$

Lets try to figure out the first 4 rules ⇒ MR, DR, PPR, GPR

$$x^8 x^3 = xxxxxxxx \cdot xxx = x^{11}$$

MR $x^8 x^3 = x^{8+3} = x^{11}$

MR $a^m a^n = a^{m+n}$

(ex) $y^3 y^5 y^2 = y^{3+5+2} = \boxed{y^{10}}$

(ex) $4y^6 2y^8 = \boxed{8y^{14}}$

(ex) $\dfrac{7x^5 x^2}{14x^3} = \dfrac{7x^7}{14x^3} = \dfrac{1x^4}{2}$

$= \boxed{\dfrac{x^4}{2}}$

$$\frac{x^5}{x^2} = \frac{\cancel{x}\cancel{x}xxx}{\cancel{x}\cancel{x}} = \frac{xxx}{1} = x^3$$

DR $x^{5-2} = x^3$

DR $\dfrac{a^m}{a^n} = a^{m-n}$

(Ex) $\dfrac{x^7}{x^3} = x^4$

(Ex) $\dfrac{3x^8}{3x^2} = x^6$

(Ex) $(x^5)^3 = (x^5)(x^5)(x^5) = x^{15}$

PPR $(a^m)^N = a^{m \cdot N}$

(Ex) $(t^8)^3 = t^{24}$

(Ex) $(-x^3)^2 = x^6$

$(-x^3)(-x^3) = x^6$

$$\left(\frac{x^3 y^2}{3^1 z^5}\right)^2 = \frac{x^6 y^4}{9 z^{10}}$$

GPR $\left(\frac{ab}{cd}\right)^N = \frac{a^N b^N}{c^N d^N}$

(1) $4b^3 \cdot b = \boxed{4b^4}$

$4bbb \cdot b = 4b^4$

(3) $-2p^3 \cdot 2p^4 = \boxed{-4p^7}$

(9) $-N^4 \cdot -N = \boxed{N^5}$

(13) $\frac{N^3}{-3N} = -\frac{N^{3-1}}{3} = \boxed{-\frac{N^2}{3}}$

(15) $\frac{b^2}{-b} = \boxed{-b}$

(25) $(3k)^3 = 27k^3$

(EX) $3^4 = 3^2 3^2$

$9 \cdot 9 = \boxed{81}$

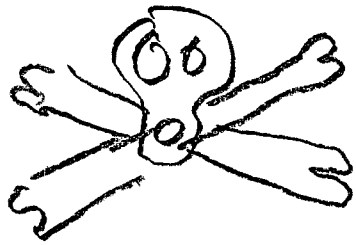
(33) $(2m^4)^4 = 16m^{16}$

(Ex) $3^5 3^{10} = 3^{15}$

$(33333)(3333333333)$

(Ex) $(2^2)(3^2) =$

$4 \cdot 9 = 36$



$(2 \cdot 2)(3 \cdot 3) =$ NO SHORTCUT!!

UNLIKE BASES!!