Mon. 2/4/19

IV. Rational (Fractional) Exponents

$8^{2/3} = \left(\sqrt[3]{8}\right)^2$

"index"

"radicand"

$27^{4/3} = \left(\sqrt[3]{27}\right)^4 = \left(\sqrt[3]{27^4}\right)$

$\sqrt[3]{8} = 2$ since ~~2~~ $2 \cdot 2 \cdot 2 = 8$.

→ what number may be used (3) times resulting in (8).

$8^{2/3} = \left(\sqrt[3]{8}\right)^2 = (2)^2 = 4$.

calculator: $\boxed{8}\ \boxed{y^x}\ \boxed{(}\ \boxed{2}\ \boxed{\div}\ \boxed{3}\ \boxed{)} = 4$.

$\boxed{\wedge}$

$\boxed{64}\ \boxed{y^x}\ \boxed{(}\ \boxed{2}\ \boxed{\div}\ \boxed{3}\ \boxed{)} = \left(\sqrt[3]{64}\right)^2 = 64^{2/3} = 16$.

$a^{b/c} = \sqrt[c]{a^b}$ or $\left(\sqrt[c]{a}\right)^b$

$\sqrt[a]{x^b} = x^{b/a}$

$\sqrt{7} = 7^{1/2}$

※ $7 = 7^1$ if there's no visible exponent, it is 1^{st} power.

$\sqrt{\ }$ no index is the same as "square root" $\sqrt[2]{\ }$

MATH 0270/1314 COLLEGE ALGEBRA Week 3 Mon. 2/4/19.

- Quiz 3
  - Never have a negative exponent as the final answer
- RATIONAL (FRACTIONAL) EXPONENTS ☆ challenging.
  - exponents are fractions. e.g. $8^{2/3}$
  - translate rational exponents into radical expression.
  - definitions.
    (1). radicand: the stuff under the radical
    (2) index:
    (3) a radical expression is asking you what number may be used [index] number of times results in [radicand].
  - formulas

$$a^{b/c} = \left(\sqrt[c]{a}\right)^b = \left(\sqrt[c]{a^b}\right)$$

$$\sqrt[a]{x^b} = x^{b/a}$$

example: $\sqrt{7} = 7^{\frac{1}{2}}$ $\left\langle \begin{array}{l} 7^1 = 7 \\ \sqrt{7} = \sqrt[2]{7} \end{array} \right.$

※ no visible exponent, the exponent is understood as 1.

no visible index on the radical expression, it's understood as 2.