7.4 : n^{th} Roots (pg 431)

index → $\sqrt[4]{81}$ ← radicand, ← radical sign

$\sqrt[4]{81}$ math $\sqrt{}$ = 3

$\sqrt[4]{3\cdot3\cdot3\cdot3} = 3$

$\sqrt[4]{(3)^4} = 3$

$\sqrt{25} = 5$

$-\sqrt{25} = -5$

$\pm\sqrt{25} = \pm 5$

Ex 1a : $\pm\sqrt{16y^4}$

$\pm\sqrt{4\cdot4\,y^4}$

$\pm 4y^2$

b) $-\sqrt{(x^2-6)^8}$

$-\sqrt[4]{(x^2-6)^4}^2$

$-(x^2-6)^4$

c) $\sqrt[5]{243a^{20}b^{25}}$

$\sqrt[5]{(3)^5(a^4)^5(b^5)^5}$

$3a^4b^5$

Home 5 math 5: $\sqrt{}$ enter

243 enter = 3

d) $\sqrt{-16x^4y^8}$

$\sqrt{-1\cdot4^2(x^2)^2(y^4)^4}$

$4|x^2y^4|$

Ex#2a) $\sqrt[4]{y^4} = |y|$

$\sqrt[4]{(y^1)^4}$

$|y|$

2b) $\sqrt[6]{64(x^2-3)^{18}}$

$\sqrt[6]{(2)^6((x^2-3)^3)^6}$

$2|(x-3)^3|$

2A : $\sqrt{36y^6}$

$\sqrt{(6)^2(y^3)^2}$

$6|y^3|$

2B : $\sqrt[4]{16(x-3)^{12}}$

$\sqrt[4]{(2)^4(x-3)^{12}}$

$2|(x-3)^3|$

3a: $C = \sqrt[5]{b^2} = \sqrt[5]{(1000)^2} = 15.85$

5 math 5: $\sqrt{}$ enter $(1000)^2$ enter

b) $(2)^5 = (\sqrt[5]{b^2})^5$

$9084.161 = b^2$

$b = 2021$

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5 math 5: $\sqrt[x]{}$ enter $(1000)^2$ enter

b) $(21)^5 = (\sqrt[5]{b^2})^5$

$\sqrt{4084.101} = \sqrt{b^2}$

$b = 2021$