Mar. 28, 2018

Sect. 7 – 1

Radical Expressions

Evaluating Roots

Find Domain

Square Root

$\sqrt{9}$

$?^2 = 9$

$3^2 = 9$

$(-3)^2 = 9$

Principal Sq. Root

$\sqrt{9} = 3$

$\sqrt{49} = 7$ $\sqrt{121} = 11$

$\sqrt{x^2} = x$ $\sqrt{z^4} = z^2$

What about

$\sqrt{-9}$

$(-3)^2 = 9$

$(3)^2 = 9$

No real answer

Cube Root

$\sqrt[3]{8} \Rightarrow ?^3 = 8$

$2^3 = 8$

$(-2)^3 = 8$

Only One Answer

$\sqrt[3]{27} = 3$

$\sqrt[3]{x^3} = x$ $\sqrt[3]{y^6} = y^2$

What About

$\sqrt[3]{-8}$ $(-2)^3 = -8$ ✓

$\sqrt[3]{-8} = -2$

Abs Value ?

$\sqrt{x^2} = |x|$ ← Principal Sq. Rt.

$\sqrt{x^4} = x^2$ (No Abs. Val.?)

Already Positive

$$\sqrt[3]{x^3} = x$$

No Abs. Val.

Remember, only one answer

Domain

$\sqrt{x-3}$ No negatives

So $x-3 \geq 0$

$x \geq 3$

$[3, \infty)$

$\sqrt{2-x}$

$2-x \geq 0$

$2 \geq x$

$x \leq 2$

$(-\infty, 2]$

$\sqrt[3]{x+5}$ Negatives are okay

so $(-\infty, \infty)$