

5

$$w^{\frac{2}{3}} + w^{\frac{1}{3}} = 2$$

$$\underbrace{w^{\frac{2}{3}}}_{u^2} + \underbrace{w^{\frac{1}{3}}}_u - 2 = 0$$

$$u^2 + u - 2 = 0$$

$$(u+2)(u-1) = 0$$

$$u+2=0 \quad u-1=0$$

$$u = -2 \quad u = 1$$

PSO

$$w^{\frac{1}{3}} = -2 \quad w^{\frac{1}{3}} = 1$$

$$\left(w^{\frac{1}{3}}\right)^3 = (-2)^3 \quad \left(w^{\frac{1}{3}}\right)^3 = 1^3$$

$$w = -8$$

$$w = 1$$

ex: $x^2 = 4$

$x^2 \xleftarrow{\text{EVEN, NOT } \pm} = 4$

$$\left(x^2\right)^{\frac{1}{2}} = \pm 4^{\frac{1}{2}}$$

$$x = \pm \sqrt{4}$$

$$x = \pm 2$$

ex: $\sqrt{x} = 3$

$x^{\frac{1}{2}} \xleftarrow{\text{ODD, NO } \pm} = 3$

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

$$x = 9$$

6 $\left(\frac{1}{x+3}\right)^2 + 7\left(\frac{1}{x+3}\right) = 18$

$$\underbrace{\left(\frac{1}{x+3}\right)^2}_{u^2} + 7\underbrace{\left(\frac{1}{x+3}\right)}_u - 18 = 0$$

$$u^2 + 7u - 18 = 0$$

$$(u+9)(u-2) = 0$$

$$u+9=0 \quad u-2=0$$

$$u = -9 \quad u = 2$$

PSO

$$\frac{1}{x+3} = -9 \quad \frac{1}{x+3} = 2$$

$$\cancel{(x+3)} \left(\frac{1}{\cancel{x+3}}\right) = -9(x+3) \quad \cancel{(x+3)} \left(\frac{1}{\cancel{x+3}}\right) = 2(x+3)$$

$$1 = -9x - 27$$

$$1 = 2x + 6$$

$$1 + 27 = -9x$$

$$28 = -9x$$

$$\frac{-28}{9} = x$$

$$1 - 6 = 2x$$

$$-5 = 2x$$

$$\frac{-5}{2} = x$$