

6.5 RADICAL EQUATIONS

TO SOLVE A RADICAL EQUATION...

- ① ISOLATE ONE RADICAL
- ② RAISE EACH SIDE TO THE APPROPRIATE POWER.
- ③ SOLVE RESULTING EQUATION
- ④ CHECK

EX: SOLVE $\sqrt[3]{2x+5} + 3 = 0$

$$\sqrt[3]{2x+5} = -3$$

$$\left(\sqrt[3]{2x+5}\right)^3 = (-3)^3$$

$$2x+5 = -27$$

$$2x = -32$$

$$x = -16$$

$$\checkmark \sqrt[3]{2(-16)+5} + 3 = 0$$

$$\sqrt[3]{-27} + 3 = 0$$

$$-3 + 3 = 0$$

$$0 = 0 \checkmark$$

Ex: Solve $4x^{\frac{3}{2}} - 8 = 0$

$$4x^{\frac{3}{2}} = 8$$

$$x^{\frac{3}{2}} = 2$$

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

$$x = 2^{\frac{2}{3}}$$

Ex: $\sqrt{2x+7} - x = 2$

$$\sqrt{2x+7} = x+2$$

$$\left(\sqrt{2x+7}\right)^2 = (x+2)^2$$

$$2x+7 = x^2+4x+4$$

$$x^2+2x-3=0$$

$$(x+3)(x-1) = 0$$

✓ $x = -3$ NO

$$x = -3, 1$$

$x = 1$ YES

Solution: $x = 1$