SOLVING RADICAL EQUATIONS

→ (ISOLATE) GET THE RADICAL BY ITSELF

* PEMDAS BACKWARDS

→ SQUARE OR CUBE BOTH SIDES

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

→ SOLVE FOR X

→ CHECK FOR "EXTRANEOUS" SOLUTIONS

EXAMPLES:

1) $\frac{3\sqrt{2x}}{3} = \frac{18}{3}$

* ÷ BY 3

$\sqrt{2x} = 6$

* SQUARE $2x = 36 \div 2 \quad x = 18$

** CHECK IT $3\sqrt{2 \cdot 18} = 18$

$3\sqrt{36} = 18$

$3 \cdot 6 = 18$ ✓

2) $\sqrt{x+18} = x-2$ $(x-2)(x-2)$

SQUARE BOTH

$x+18 = x^2 - 4x + 4$

COMBINE TERMS

$x^2 - 5x - 14 = 0$

$(x-7)(x+2)$

-14, -7, +2, -5

$x = 7$ ✓

$\sqrt{7+18} = 7-2$

$5 = 5$

~~$x = -2$~~

EXTRANEOUS

$\sqrt{-2+18} = -2-2$

$4 \neq -4$