Solving Equations with Radicals

We can solve the radical equation $\sqrt{x} = 4$ by squaring both sides:

$\left(\sqrt{x}\right)^2 = (4)^2$

$x = 16$

However, when you **square**, you must **beware**! Watch what happens to this equation:

$x = 5$

$(x)^2 = (5)^2$

$x^2 = 25$

Before we had **one** solution (5), but after squaring we have **two** solutions (5 and -5)!

So, always check solutions after squaring.

In fact, always check after raising both sides to an _____ power.

Solving Radical Equations

Ex 1.

Solve: $\sqrt{3x + 4} = 8$

Ex 2.

Solve: $\sqrt{6x + 7} - x = 2$

Ex 3.

Solve: $\sqrt{x-1} + 7 = 2$

Ex 4.

Solve: $\sqrt{x+5} - \sqrt{x-3} = 2$

Ex 5.

Solve: $\sqrt[3]{2x-3} + 3 = 0$

Practice

1. Solve: $\sqrt{2x + 1} = x - 7$

2. Solve: $\sqrt{x - 4} + \sqrt{x + 4} = 4$

3. Solve: $\sqrt[3]{3x - 6} + 5 = 8$

Q: What are the next two letters in this sequence: A E F H I K L M ?