Radical Equations:

If \( \sqrt{x} = 4 \) is raised to the 2nd power, we get \( x^2 = 16 \), which means \( x = 4 \) or \( x = -4 \), which was not the original.

Squaring both sides of an equation can produce solutions that do not agree with the original.

ex: \( \sqrt{5} + 5 = 9 \), \( \sqrt{3x - 2} + 4 = 5 \), \( (x - 1)^{\frac{1}{3}} - 2 = 2 \)

Steps to solve radical equations:

1. Isolate the radical term (if more than one radical term choose one to isolate).
2. Raise each side of the equation to the power of the index.
3. Solve. If there is still a radical, repeat.
4. Check with original for extraneous roots.

\( 7 = \sqrt[4]{x + 3} + 9 \) \( y + \sqrt{y - 2} = 8 \)

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