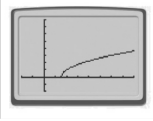
1-2 Solving Radical Equations

Remember that you can graph the two sides of an equation as separate functions to find solutions of the equation: a solution is any x-value where the two graphs intersect.

The graph of $y = \sqrt{x-3}$ is shown on a calculator window of $-4 \le x \le 16$ and $-2 \le y \le 8$. Reproduce the graph on your calculator. Then add the graph of $y = 2$.



How many solutions does the equation $\sqrt{x-3} = 2$ have? _____ How do you know?

On your calculator, replace the graph of $y = 2$ with the graph of $y = -1$.

How many solutions does the equation $\sqrt{x-3} = -1$ have? _____ How do you know?

Find the solution graphically

$(x+5)^{\frac{1}{2}} - 2 = 1$

$2 + \sqrt{x+10} = x$

Solve the following, check for extraneous solutions

$2\sqrt{x} = 3\sqrt{x-2}$

$\sqrt{5x-11} = x-1$

Solve the following, check for extraneous solutions

$\sqrt{2x+5} + 4 = 3$

$(x+6)^{\frac{1}{2}} - (2x-4)^{\frac{1}{2}} = 0$

Example 2 **Solve the equation.**

$\sqrt[3]{x+2} + 7 = 5$

$2(x-50)^{\frac{1}{3}} = -10$

Solve the following equations

$\sqrt[3]{x-5} = \sqrt[3]{7-x}$

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

August 21, 2018