

1.6.16

Everyone needs a calculator again today.

Solve each equation. Remember to check for extraneous solutions.

Step 1: Isolate the square root

Step 2: Square both sides

Step 3: Solve resulting equation.

Step 4: Check your answer to make sure it is not extraneous!

$$1) (\sqrt{x-8})^2 = (\sqrt{12-x})^2$$

$$\begin{array}{r} x-8=12 \\ +x \quad \quad +x \end{array}$$

$$\begin{array}{r} 2x-8=12 \\ +8 \quad +8 \end{array}$$

$$\frac{2x}{2} = \frac{20}{2}$$

$$\boxed{x=10}$$

$$\begin{array}{l} \sqrt{10-8} = \sqrt{12-10} \\ \sqrt{2} = \sqrt{2} \checkmark \end{array}$$

$$2) \cancel{5} + \sqrt{72-2n} = 13$$

$$(\sqrt{72-2n})^2 = (8)^2$$

$$\begin{array}{r} \cancel{72}-2n=64 \\ -\cancel{72} \quad -72 \end{array}$$

$$\begin{array}{r} -2n=-8 \\ \hline -2 \quad -2 \end{array}$$

$$\boxed{n=4}$$

$$5 + \sqrt{72-2(4)} = 13$$

$$5 + \sqrt{64} = 13$$

$$5 + 8 = 13 \checkmark$$