Radical Equations, both sides

Procedure

1. **Isolate one of the radicals**
2. **Raise each side to the power of the index of that radical and simplify**
3. **If there is more than one radical, isolate that radical**
4. **Raise each side to the power of the index of that radical and simplify**
5. **Solve the resulting equation**
6. **Check your answer**

Example: **Find the solution set of $\sqrt{2x+1}-1=\sqrt{x}$**

1. $\sqrt{2x+1}=\sqrt{x}+1$
2. $2x+1=x+2\sqrt{x}+1$
3. $x=2\sqrt{x}$
4. $x^2=4x$
5. $x^2-4x=0$
   $x(x-4)=0;\ x=0,\ x=4$
6. **Both answers work.**

Solve the following equations

1. $\sqrt{x-2}=x-4$

2. $\sqrt{x^2-8}=2-x$

3. $\sqrt{x-5}=\sqrt{x}-1$

4. $\sqrt{x-11}=\sqrt{x}+1$

5. $\sqrt{x}-1=\sqrt{2x+1}$

6. $\sqrt{x-5}=\sqrt{x}-1$

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7. $\sqrt{x+12}+\sqrt{x}=2$

8. $\sqrt{x+5}+\sqrt{x}=1$

9. $\sqrt{x+6}-\frac{2}{\sqrt{x+1}}=\sqrt{x+1}$

10. $\sqrt{x}+\sqrt{x-3}=\frac{3}{\sqrt{x-3}}$

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