

$$\frac{-3\sqrt{2}}{-14} + \frac{-12}{-14} = \boxed{\frac{3}{14}\sqrt{2} + \frac{6}{7}} \checkmark$$

$$\ast \frac{2}{\sqrt{3}-1} \cdot \frac{\sqrt{3}+1}{\sqrt{3}+1} = \frac{2\sqrt{3}+2}{3+\sqrt{3}-\sqrt{3}-1} = \frac{2\sqrt{3}+2}{2} = \boxed{\sqrt{3}+1} \checkmark$$

Section 7.6

Solving Equations

$$\begin{aligned}\sqrt{x} &= 7 \\ (\sqrt{x})^2 &= (7)^2 \\ \boxed{x = 49} \checkmark\end{aligned}$$

$$\begin{aligned}\sqrt{x-2} &= 6 \\ (\sqrt{x-2})^2 &= 6^2 \\ x-2 &= 36 \\ x &= 36+2 \\ \boxed{x = 38} \checkmark\end{aligned}$$

$$\begin{aligned}\text{check} \\ \sqrt{38-2} &= 6 \\ \sqrt{36} &= 6 \\ 6 &= 6 \checkmark\end{aligned}$$

$$\ast 2\sqrt{x-6} = -6$$

$$\frac{2\sqrt{x-6}}{2} = \frac{-6}{2}$$

$$\sqrt{x-6} = -3$$

$$(\sqrt{x-6})^2 = (-3)^2$$

$$\begin{aligned}x-6 &= 9 \\ +6 & \quad -6\end{aligned}$$

$$\boxed{x = 15}$$

check

$$2\sqrt{x-6} = -6$$

$$2\sqrt{15-6} = -6$$

$$2\sqrt{9} = -6$$

$$2(3) = -6$$

$$6 = -6 \quad \text{NO?}$$

No solution

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$$\begin{aligned} *18 \quad & 2x + \sqrt{x+1} = 8 \\ & \cancel{2x} \quad \quad \quad -2x \\ & \sqrt{x+1} = 8 - 2x \end{aligned}$$

$$\begin{aligned} \sqrt{x+1} &= 8 - 2x \\ (\sqrt{x+1})^2 &= (8 - 2x)^2 \end{aligned}$$

$$\begin{aligned} x+1 &= 64 - 32x + 4x^2 \\ -x-1 \quad \quad \quad -1 \quad \quad \quad -x \\ 0 &= 4x^2 - 33x \end{aligned}$$

$$0 = (4x - 21)(x - 3)$$

$$4x - 21 = 0$$

$$x - 3 = 0$$

$$4x = 21$$

$$\boxed{x = 3}$$

$$\boxed{\frac{x=21}{4}} \quad 5.25$$

check: $2x + \sqrt{x+1} = 8$

$$(x=3)$$

$$2(3) + \sqrt{3+1} = 8$$

$$6 + 2 = 8$$

$$8 = 8$$

~~scribble~~

$$(x=5.25)$$

$$2(5.25) + \sqrt{5.25+1} = 8$$

$$10.5 + 2.5 = 8$$

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$$\sqrt{x-1} + \sqrt{x+8} = 7$$

$$\sqrt{x+8} = 7 - \sqrt{x-1}$$

$$x+8 = (7 - \sqrt{x-1})(7 - \sqrt{x-1})$$