q) $\underbrace{\sqrt{2x+1}}_{\geq 0\,!} = -7$ keine Lösung!

r) $\sqrt{x} - \sqrt{x-6} - \sqrt{2x-14} = 0$

$$\sqrt{x} = \sqrt{x-6} + \sqrt{2x-14} \quad | \text{ Quadr.}$$

$$x = \left(\sqrt{x-6} + \sqrt{2x-14}\right)^2 \quad | \text{ 1. binom. Formel}$$

$$x = x-6 + 2\cdot\sqrt{x-6}\cdot\sqrt{2x-14} + 2x-14$$

$$x = 3x - 20 + 2\cdot\sqrt{x-6}\cdot\sqrt{2x-14} \quad | -3x \; +20$$

$$-2x + 20 = 2\cdot\sqrt{(x-6)\cdot(2x-14)} \quad | :2$$

$$-x + 10 = \sqrt{(x-6)\cdot(2x-14)} \quad | \text{ Quadr.}$$

$$(10-x)^2 = (x-6)\cdot(2x-14) \quad | \text{ binom. Formel}$$

$$100 - 20x + x^2 = \underline{2x^2} \underline{-14x} \underline{-12x} + 84 \quad | -2x^2 \; +26x \; -84$$

$$-x^2 + 6x + 16 = 0 \quad | :(-1)$$

$$x^2 - 6x - 16 = 0$$

$\underline{\underline{x_1 = -2}}$: Probe: $\sqrt{-2} - \ldots$ ↯ $\sqrt{-2}$ nicht definiert

$\boxed{x_2 = 8}$: Probe: $\sqrt{8} - \sqrt{8-6} - \sqrt{2\cdot 8-14} \stackrel{?}{=} 0$

$$\sqrt{8} - \sqrt{2} - \sqrt{2} \stackrel{?}{=} 0$$

$\sqrt{8} = \sqrt{4\cdot 2} = \sqrt{4}\cdot\sqrt{2} = 2\cdot\sqrt{2}$ ←

$$\sqrt{8} - 2\cdot\sqrt{2} \stackrel{?}{=} 0$$

$$\sqrt{8} - \sqrt{8} = 0 \; ✓ \quad \underline{\mathbb{L} = \{8\}}$$