

$$a) \sqrt{3x-2} + 2 - x = 0$$

$$\Leftrightarrow$$

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

$$\Rightarrow$$

$$3x-2 = (x-2)^2$$

$$\Leftrightarrow$$

$$3x-2 = x^2 - 4x + 4$$

$$\Leftrightarrow$$

$$x^2 - 7x + 6 = 0$$

$$x = \frac{7}{2} \pm \sqrt{\left(\frac{7}{2}\right)^2 - 6} = \frac{7}{2} \pm \sqrt{\frac{49}{4} - \frac{24}{4}} =$$

$$= \frac{7}{2} \pm \sqrt{\frac{25}{4}} =$$

$$= \frac{7}{2} \pm \frac{5}{2}$$

$$x_1 = 6, x_2 = 1$$

Undersök om lösningarna duger med insättning.

$$x=6 \text{ ger } \sqrt{3 \cdot 6 - 2} + 2 - 6 = 0 \text{ ok}$$

$$x=1 \text{ ger } \sqrt{3 \cdot 1 - 2} + 2 - 1 = 2 \neq 0 \text{ falsk}$$

Svar: $x = 6$.

$$b) \sqrt{t+9} - \sqrt{t} = 1$$

$$\Leftrightarrow$$

$$\sqrt{t+9} = 1 + \sqrt{t}$$

$$\Rightarrow$$

, 2

$$t+9 = (1 + \sqrt{t})^2$$

\Leftrightarrow

$$t+9 = 1 + 2\sqrt{t} + t$$

\Leftrightarrow

$$\sqrt{t} = 4$$

\Rightarrow

$$t = 16$$

Koll: $t = 16$ ger $\sqrt{16+9} - \sqrt{16} =$
 $= 5 - 4 = 1$ ok

Svar: $t = 16$

c) $\sqrt{s+13} - \sqrt{7-s} = 2$

\Leftrightarrow

$$\sqrt{s+13} = 2 + \sqrt{7-s}$$

\Rightarrow

$$s+13 = (2 + \sqrt{7-s})^2$$

\Leftrightarrow

$$s+13 = 4 + 4\sqrt{7-s} + 7-s$$

\Leftrightarrow

$$2s+2 = 4\sqrt{7-s}$$

\Leftrightarrow

$$s+1 = 2\sqrt{7-s}$$

\Rightarrow

$$(s+1)^2 = 4(7-s)$$

\Leftrightarrow

$$s^2 + 2s + 1 = 28 - 4s$$

\Leftrightarrow

$$s^2 + 6s - 27 = 0$$

$$s^2 + 6s - 27 = 0$$

(\Leftrightarrow)

$$s = -3 \pm \sqrt{9 + 27} = -3 \pm 6$$

$$s_1 = 3, \quad s_2 = -9$$

Koll: $s_1 = 3$ ger $\sqrt{3+13} - \sqrt{7-3} = 4 - 2 = 2$ ok!

$s_2 = -9$ ger $\sqrt{-9+13} - \sqrt{7+9} = 2 + 4 = 6$
falsk

Svar: $s = 3$