

- 1) $\sqrt{10x^2 - 49} = 3x$
- 2) $(6x-5)^{\frac{4}{3}} = (3x+2)^{\frac{4}{3}}$
- 3) $\sqrt{3x+7} = x+1$
- 4) $\sqrt{x+2} = 4 - \sqrt{x}$
- 5) $\sqrt{x+8} - 1 = \sqrt{x} + \sqrt{3}$
- 6) $\sqrt{x+3} = \sqrt{x+1} + 1$
- 7) $\frac{6}{x+1} = \frac{1}{4} - \frac{9}{x-1}$
- 8) $\frac{2x}{x+1} + \frac{x-5}{(x-1)(x+1)} = 1$
- 9) $\frac{2x-5}{x-3} - 2 = \frac{3}{x+3}$
- 10) $\frac{3x+2}{x+1} - \frac{x-1}{x-3} = \frac{5}{2}$

~~A - 54~~

$$5) (\overbrace{\sqrt{x+8} - 1}^{\text{original}})(\overbrace{\sqrt{x+8} - 1}^{\text{conjugate}}) = (\sqrt{x} + \sqrt{3})(\sqrt{x} + \sqrt{3})$$

$$x+8 - 2\sqrt{x+8} + 1 = x + 2\sqrt{3}x + 3$$

$$\cancel{x} - \cancel{2\sqrt{x+8}} + \cancel{9} = x + 2\sqrt{3}x + 3$$

~~$$-\frac{2\sqrt{x+8} + 6}{2} = \frac{2\sqrt{3}x}{2}$$~~

$$-\sqrt{x+8} + 3 = \sqrt{3x}$$

$$-\sqrt{x+8} = \sqrt{3x} - 3$$

$$\sqrt{x+8} = (-\sqrt{3x} + 3)(-\sqrt{3x} + 3)$$

$$x+8 = 3x - 6\sqrt{3x} + 9$$

$$x+8 = 3x - 6\sqrt{3x} + 9$$

$$x = 3x - 6\sqrt{3x} + 1$$

$$(-2x-1)^2 = (-6\sqrt{3x})^2$$

$$(-2x-1)(-2x-1) = (-6\sqrt{3x})(6\sqrt{3x})$$

$$4x^2 + 4x + 1 = 36 \cdot 3x$$

$$4x^2 + 4x + 1 = 108x$$

$$-108x \quad -108x$$

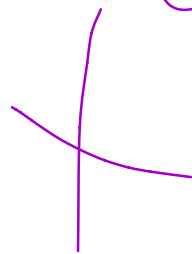
$$4x^2 - 104x + 1 = 0$$

$$\frac{104 \pm \sqrt{(-104)^2 - 4(4)(1)}}{8}$$

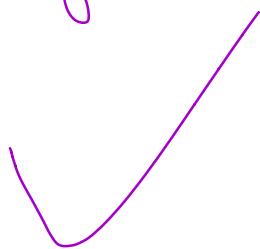
$$104 \pm \sqrt{10816 - 16}$$

$$\frac{104 \pm \sqrt{10800}}{8}$$

$$\frac{104 + \sqrt{10800}}{8}$$



$$\frac{104 - \sqrt{10800}}{8}$$



(6) $(\sqrt{x+3})^2 = (\sqrt{x+1} + 1)(\sqrt{x+1} + 1)$

$$x+3 = x+1 + \sqrt{x+1} + \sqrt{x+1} + 1$$

$$x+3 = x+2 + 2\sqrt{x+1}$$

$$\frac{1}{2} = \frac{2\sqrt{x+1}}{2}$$

$$\left(\frac{1}{2}\right)^2 = (\sqrt{x+1})^2$$

$$\frac{1}{4} = x + 1$$

$$-\frac{3}{4} = x$$

$$\frac{60 \pm \sqrt{3652}}{2}$$

$$1 \text{ or } 0: 4(x+1)(x-1)$$

$$7) \frac{6}{x+1} = \frac{1}{4} - \frac{9}{x-1}$$

$$\frac{6}{x+1} \cdot \frac{4(x-1)}{4(x-1)} = \frac{1}{4} \cdot \frac{(x-1)(x+1)}{(x-1)(x+1)} - \frac{9}{x-1} \cdot \frac{4(x+1)}{4(x+1)}$$

$$24(x-1) = (x-1)(x+1) - 36(x+1)$$

$$24x - 24 = x^2 - 1 - 36x - 36$$

$$-24x + 24 \quad -24x + 24$$

$$0 = x^2 - 60x - 13$$

$$\frac{60 \pm \sqrt{3600 - 4(-1)(-13)}}{2}$$

$$\frac{60 \pm \sqrt{3652}}{2}$$