

1)  $x - \sqrt{x} = 30$  (замена  $t = \sqrt{x}, t \geq 0$ )  
 $t^2 - t - 30 = 0$   
 $t_1 = 6$   
 $t_2 = -5$   
 $\sqrt{x} = 6$   
 $x = 36$   
 $\sqrt{x} = -5$   
нет реш  
**Ответ: 36**

2)  $\sqrt{x} - 6/\sqrt{x} = 1$   
 $\sqrt{x} = t$   
 $t - 6/t = 1$   
 $t \neq 0$   
 $t^2 - t - 6 = 0$   
 $t_1 = -2$   
 $t_2 = 3$   
 $\sqrt{x} = 3$   
 $x = 9$   
 $\sqrt{x} = -2$   
нет реш  
**Ответ: 9**

3)  $\sqrt[3]{x} + 2\sqrt[6]{x} = 3$  ( $\sqrt[6]{x} = t, t \geq 0$ )  
 $\sqrt[6]{x} = t$   
 $t^2 + 2t - 3 = 0$   
 $t_1 = -3$   
 $t_2 = 1$   
 $\sqrt[6]{x} = 1$   
 $x = 1$   
 $\sqrt[6]{x} = -3$   
реш нет  
**Ответ: 1**

4)  $\sqrt{2-x} - 20 = \sqrt[4]{2-x}$   
 $t = \sqrt[4]{2-x}$   
 $t^2 - t - 20 = 0$   
 $t_1 = 5$   
 $t_2 = -4$   
 $\sqrt[4]{2-x} = 5$   
 $2-x = 625$   
 $x = -623$   
 $\sqrt[4]{2-x} = -4$   
реш нет  
**ответ: -623**

5)  $10\sqrt{x^2-x-1} = 13 - 3/\sqrt{x^2-x-1}$   
 $\sqrt{x^2-x-1} = t$   
 $10t = 13 - 3/t$   
 $t \neq 0$   
 $10t^2 - 13t + 3 = 0$   
 $D = 169 - 120 = 49$   
 $t_1 = (13+7)/20 = 1$   
 $t_2 = (13-7)/20 = 6/20 = 3/10$   
1)  $\sqrt{x^2-x-1} = 1$   
 $x^2 - x - 1 = 1$   
 $x^2 - x - 2 = 0$   
 $x_1 = 2$   
 $x_2 = -1$   
2)  $x^2 - x - 1 = 9/100$   
 $x^2 - x - 1 - 9/100 = 0$   
 $x^2 - x - 109/100 = 0$   
 $100x^2 - 100x - 109 = 0$   
 $D = 10000 + 43600 = 53600 = 400 \cdot 134 = (20\sqrt{134})^2$   
 $x_1 = (100 - 20\sqrt{134})/200 = (5 - \sqrt{134})/10$   
 $x_2 = (5 + \sqrt{134})/10$   
**Ответ: 2; -1; (5 - \sqrt{134})/10; (5 + \sqrt{134})/10**

$$6) \sqrt{5+2x} = 10 - 3\sqrt[4]{5+2x}$$

$$\sqrt{5+2x} = 10 - 3\sqrt[4]{5+2x}$$

$$\sqrt[4]{5+2x} = t$$

$$t^2 = 10 - 3t$$

$$t^2 + 3t - 10 = 0$$

$$t_1 = -5$$

$$t_2 = 2$$

$$\sqrt[4]{5+2x} = 2$$

$$5+2x = 16$$

$$2x = 11$$

$$x = 11/2$$

$$\text{Ответ: } 11/2$$

$$7) \sqrt{x^2 - 2x - 1} = 14 / \sqrt{x^2 - 2x - 1} - 5$$

$$t = \sqrt{x^2 - 2x - 1}$$

$$t = 14/t - 5$$

$$t \neq 0$$

$$t^2 + 5t - 14 = 0$$

$$t_1 = -7$$

$$t_2 = 2$$

$$\sqrt{x^2 - 2x - 1} = 2$$

$$x^2 - 2x - 1 = 4$$

$$x^2 - 2x - 5 = 0$$

$$D = 4 + 20 = 24 = (2\sqrt{6})^2$$

$$x_1 = (2 + 2\sqrt{6})/2 = 1 + \sqrt{6}$$

$$x_2 = 1 - \sqrt{6}$$

$$\text{Ответ: } 1 + \sqrt{6}; 1 - \sqrt{6}$$