

$$x^2 + 10x + 25 = 4x(2x + 7)$$

$$x^2 + 10x + 25 = 8x^2 + 28x$$

$$7x^2 + 18x - 25 = 0$$

$$x_1 = 1$$

$$x_2 = -\frac{25}{7} \text{ — не подходит}$$

$$\text{Ответ: } x = 1$$

$$3) \sqrt{x-3} + \sqrt{x+4} = \sqrt{2x+1}$$

$$\text{ОДЗ: } \boxed{x \geq 3}$$

$$\cancel{x-3} + \cancel{x+4} + 2\sqrt{x-3}\sqrt{x+4} = \cancel{2x+1}$$

$$2\sqrt{x-3} \cdot \sqrt{x+4} = 0$$

$$\underline{x = 3} \quad \text{или} \quad x = -4 \text{ — не подходит!}$$

$$4) \sqrt{9-2x} + \sqrt{1-x} = 2\sqrt{4-x}$$

$$\text{ОДЗ: } \boxed{x \leq 1}$$

$$9-2x+1-x+2\sqrt{9-2x} \cdot \sqrt{1-x} = 4(4-x)$$

$$2\sqrt{9-2x} \cdot \sqrt{1-x} = 16-4x-10+3x$$

$$2\sqrt{9-2x} \cdot \sqrt{1-x} = 6-x$$

$$4(9-2x)(1-x) = 36-12x+x^2$$