

$$\textcircled{4} (\sqrt{x+1})^2 = (x-1)^2$$

$$x+1 = x^2 - 2x + 1$$

$$0 = x^2 - 3x$$

$$0 = x(x-3)$$

$$\boxed{x=0, 3}$$

$$\textcircled{5} \text{ no solution.}$$

$$\textcircled{6} \sqrt{x} - 5 = 0$$

$$(\sqrt{x})^2 = 5^2$$

$$\boxed{x=25}$$

$$\textcircled{7} (\sqrt{x+7})^2 = (x-5)^2$$

$$x+7 = x^2 - 10x + 25$$

$$0 = x^2 - 11x + 18$$

$$0 = (x-9)(x-2)$$

$$\boxed{x=9, 2}$$

$$\textcircled{10} (\sqrt{2x-5})^2 = 7^2$$

$$2x-5 = 49$$

$$2x = 54$$

$$\boxed{x=27}$$

$$\textcircled{11} (\sqrt{2x-4})^2 = (x-2)^2$$

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

$$0 = x^2 - 6x + 8$$

$$0 = (x-4)(x-2)$$

$$\boxed{x=4, 2}$$

$$\textcircled{12} \sqrt{x} + 6 = x$$

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

$$x = x^2 - 12x + 36$$

$$0 = x^2 - 13x + 36$$

$$0 = (x-9)(x-4)$$

$$\boxed{x=9, 4}$$

$$\textcircled{13} (\sqrt{x+2})^2 = (10-x)^2$$

$$x+2 = 100 - 20x + x^2$$

$$0 = x^2 - 21x + 98$$

$$0 = (x-7)(x-14)$$

$$\boxed{x=14, 7}$$

$$\textcircled{14} (\sqrt{4x+2})^2 = (\sqrt{3x+4})^2$$

$$4x+2 = 3x+4$$

$$\boxed{x=2}$$

$$\textcircled{15} (\sqrt{7x-3})^2 = 5^2$$

$$7x-3 = 25$$

$$7x = 28$$

$$\boxed{x=4}$$

$$\textcircled{17} (2\sqrt{x-1})^2 = (\sqrt{26+x})^2$$

$$4(x-1) = 26+x$$

$$4x-4 = 26+x$$

$$3x = 30$$

$$\boxed{x=10}$$

$$\textcircled{19} \sqrt{7x-6} - \sqrt{5x+2} = 0$$

$$(\sqrt{7x-6})^2 = (\sqrt{5x+2})^2$$

$$7x-6 = 5x+2$$

$$2x = 8$$

$$\boxed{x=4}$$

$$\textcircled{20} \sqrt{3x-3} - 6 = 0$$

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

$$3x-3 = 36$$

$$3x = 39$$

$$\boxed{x=13}$$

$$\textcircled{21} 5\sqrt{x} + 2 = 12$$

$$5\sqrt{x} = 10$$

$$(\sqrt{x})^2 = 2^2$$

$$\boxed{x=4}$$

$$\textcircled{23} 4\sqrt{x} - 5 = 27$$

$$4\sqrt{x} = 32$$

$$(\sqrt{x})^2 = 8^2$$

$$\boxed{x=64}$$

$$\textcircled{24} (\sqrt{x+1})^2 = (x+1)^2$$

$$x+1 = x^2+2x+1$$

$$0 = x^2+x$$

$$\boxed{x=0, -1}$$

$$0 = x(x+1)$$

$\textcircled{25}$ no solution

$$\textcircled{43} (\sqrt{4x+1}-3)^2 = (\sqrt{4-2x})^2$$

$$4x+1-6\sqrt{4x+1}+9 = 4-2\sqrt{x}$$

$$-6\sqrt{4x+1} = -6x-6$$

$$(\sqrt{4x+1})^2 = (x+1)^2$$

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

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

$$0 = x(x-2)$$

$$\boxed{x=0, 2}$$

$$\textcircled{27} (\sqrt{x+2})^2 = (x-8)^2$$

$$x+2 = x^2-36x+324$$

$$0 = x^2-37x+322$$

$$\boxed{x=23, 14}$$

$$0 = (x-23)(x-14)$$

$$\textcircled{44} \sqrt{5-x} - \sqrt{2x-1} = -3$$

$$(\sqrt{5-x})^2 = (\sqrt{2x-1}-3)^2$$

$$5-x = 2x-1-6\sqrt{2x-1}+9$$

$$5-x = 2x+8-6\sqrt{2x-1}$$

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

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

$$\frac{1}{4}x^2 + \frac{1}{2}x + \frac{1}{4} = 2x-1$$

$$\frac{1}{4}x^2 - \frac{3}{2}x + \frac{5}{4} = 0 \cdot 4$$

$$x^2 - 6x + 5 = 0$$

$$(x-1)(x-5) = 0$$

$$\boxed{x=1, 5}$$

$$(45) (-1 + \sqrt{4x-4})^2 = (\sqrt{2x-1})^2$$

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

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

$$-2\sqrt{4x-4} = -2x + 2$$

$$(\sqrt{4x-4})^2 = (x-1)^2$$

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

$$0 = x^2 - 6x + 5 \quad -1 \pm 5$$

$$\boxed{x=1, 5}$$

$$0 = (x-1)(x-5)$$

$$(46) (1 + \sqrt{2n-9})^2 = (\sqrt{2n-6})^2$$

$$1 + 2\sqrt{2n-9} + 2n - 9 = 2n - 6$$

$$2n - 8 + 2\sqrt{2n-9} = 2n - 6$$

$$2\sqrt{2n-9} = 2$$

$$(\sqrt{2n-9})^2 = 1^2$$

$$2n - 9 = 1$$

$$2n = -8$$

$\boxed{\text{no solution}}$

$$n = \cancel{X}$$

