

## 7.5 Solving

Pg 394 #1-6, 21-23, 27

1.  $3\sqrt{x} + 3 = 15$

$$\frac{3\sqrt{x}}{3} = \frac{12}{3}$$

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

$$\boxed{x = 16}$$

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

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

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

$$\boxed{x = 1}$$

3.  $\sqrt{x+3}^2 = 5^2$

$$x+3 = 25$$

$$\boxed{x = 22}$$

4.  $\sqrt{3x+4}^2 = 4^2$

$$3x+4 = 16$$

$$3x = 12$$

$$\boxed{x = 4}$$

5.  $\sqrt{2x+3} \cdot 7 = 0$

$$\sqrt{2x+3}^2 = 7^2$$

$$2x+3 = 49$$

$$2x = 46$$

$$\boxed{x = 23}$$

6.  $\sqrt{6-3x} - 2 = 0$

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

$$6-3x = 4$$

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

$$\boxed{x = \frac{2}{3}}$$

21.  $\sqrt{3x} = \sqrt{x+6}$

$$3x = x+6$$

$$2x = 6$$

$$\boxed{x = 3}$$

$$\sqrt{\cdot} \sqrt{9} = \sqrt{9}$$

$$3 = 3$$

✓

33-37

22.  $(x+5)^{1/2} - (5-2x)^{1/4} = 0$

$$((x+5)^{1/2})^4 = ((5-2x)^{1/4})^4$$

$$(x+5)^2 = 5-2x$$

$$x^2 + 10x + 25 = 5 - 2x$$

$$x^2 + 12x + 20 = 0$$

$$(x+10)(x+2) = 0$$

$$x = -10 \quad \boxed{x = -2}$$

$$\sqrt{\cdot} \sqrt{-5} - \sqrt[4]{25} = 0$$

NO

$$(-2+5)^{1/2} = (5-2(-2))^{1/4}$$

$$(3^{1/2})^4 = (9^{1/4})^4$$

$$3^2 = 9 \quad \checkmark$$

23.  $(7x+6)^{1/2} - (9+4x)^{1/2} = 0$

$$(\sqrt{7x+6})^2 = (\sqrt{9+4x})^2$$

$$7x+6 = 9+4x$$

$$3x = 3$$

$$\boxed{x = 1}$$

$$\sqrt{\cdot} \sqrt{7+6} = \sqrt{9+4}$$

$$\sqrt{13} = \sqrt{13} \quad \checkmark$$

27.  $\sqrt{3x+2} - \sqrt{2x+7} = 0$

$$\sqrt{3x+2}^2 = \sqrt{2x+7}^2$$

$$3x+2 = 2x+7$$

$$\boxed{x = 5}$$

$$\sqrt{\cdot} \sqrt{15+2} = \sqrt{10+7}$$

$$\sqrt{17} = \sqrt{17} \quad \checkmark$$

33.  $\sqrt{32} = \sqrt{5^2}$

$$4\sqrt{2} = 5$$

Ⓑ

35.  $2\sqrt[3]{2x+1} = 5$

$$2\sqrt[3]{2x} = 4$$

$$\sqrt[3]{2x}^3 = 2^3$$

$$2x = 8$$

$$\boxed{x = 4}$$

34.  $3\sqrt{2x} - 3 = 9$

$$3\sqrt{2x} = 12$$

$$\sqrt{2x}^2 = 4^2$$

$$2x = 16$$

$$\boxed{x = 8}$$

$$\sqrt{\cdot} 3\sqrt{16} - 3 = 9$$

$$12 - 3 = 9$$

✓

$$\sqrt{\cdot} 2\sqrt[3]{8} + 1 = 5$$

$$4 + 1 = 5$$

✓

36.  $\sqrt{2x-1} - 3 = 0$

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

$$2x-1 = 9$$

$$2x = 10$$

$$\boxed{x = 5}$$

$$\sqrt{\cdot} \sqrt{10-1} - 3 = 0$$

$$\sqrt{9-3} = 0$$

✓

37.  $\sqrt{2x+3} - 7 = 0$

$$\sqrt{2x+3}^2 = 7^2$$

$$2x+3 = 49$$

$$2x = 46$$

$$\boxed{x = 23}$$

$$\sqrt{\cdot} \sqrt{46+3} - 7 = 0$$

$$\sqrt{49-7} = 0$$

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