

pg. 17 left side

① $(\sqrt{2x+8})^2 = (10)^2$

$2x+8 = 100$

$2x = 92$

$x = 46$

② $(\sqrt{2x+3})^2 = (x)^2$

$2x+3 = x^2$

$-2x - 3$

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

$(x-3)(x+1) = 0$

$x = 3$ ~~$x = -1$~~

③ $\sqrt[3]{3x+6} = 10$

$(\sqrt[3]{3x+6})^3 = 10^3$

$3x+6 = 1000$

$3x = 994$

$x = \frac{994}{3}$

④ $(x-3)^2 = \sqrt{4x}^2$

$x^2 - 6x + 9 = 4x$
 $-4x$ $-4x$

$x^2 - 10x + 9 = 0$

$(x-9)(x-1)$

$x = 9$ ~~$x = 1$~~

⑤ $(\sqrt[5]{2x+1})^5 = (4)^5$

$2x+1 = 1024$

$2x = 1023$

$x = 511.5$

⑥ $6\sqrt{x} - \sqrt{x-1} = 0$

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

$36x = x-1$
 $-x$ $-x$

$35x = -1$

~~$x = -\frac{1}{35}$~~

No Solution

⑧ $2x^{3/2} = 250$

$(x^{3/2})^{2/3} = (250)^{2/3}$

$x = 25$

⑨ $x^{4/3} + 9 = 25$
 -9 -9

$(x^{4/3})^{3/4} = (16)^{3/4}$

$x = \pm 8$

$x = 8, -8$

⑦ $\frac{3x^{1/4}}{3} = \frac{4}{3}$

$(x^{1/4})^4 = (\frac{4}{3})^4$

$x = \frac{256}{81}$

⑪ $5(x-8)^{3/4} = 40$

$(x-8)^{3/4} = 8$
 $(x-8)^{3/4} = (8)^{4/3}$

$x-8 = 16$

$x = 24$

⑫ $3(x-1)^{2/3} + 4 = 52$
 -4 -4

$3(x-1)^{2/3} = 48$

$(x-1)^{2/3} = 16$
 $(x-1)^{2/3} = (16)^{3/2}$

$x-1 = \pm 64$

$x = 64+1 = 65$

$-64+1 = 63$

⑩ $(x+9)^{5/2} - 1 = 31$

$(x+9)^{5/2} = 32$
 $(x+9)^{5/2} = (32)^{2/5}$

$x+9 = 4$

$x = 4-9 = -5$

$x = -5$

⑬ $2(x-5)^4 = 32$

$(x-5)^4 = 16$
 $\sqrt[4]{(x-5)^4} = \sqrt[4]{16}$

$x-5 = \pm 2$

$x = 2+5 = 7$

$-2+5 = 3$

$x = 7, 3$

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$$\textcircled{2} \quad 4x - x\sqrt{3} = 0$$

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

$$16x^2 = 3x^2$$

$$\begin{array}{r} -3x^2 \\ -3x^2 \end{array}$$

$$13x^2 = 0$$

$$x^2 = 0$$

$$x = 0$$

$$\textcircled{8} \quad \sqrt{1-4t} - 8 = -6$$

$$\begin{array}{r} +8 \\ +8 \end{array}$$

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

$$1-4t = 4$$

$$\begin{array}{r} -1 \\ -1 \end{array}$$

$$-4t = 3$$

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

$$\textcircled{4} \quad (\sqrt{x+8})^2 = (5)^2$$

$$x+8 = 25$$

$$x = 17$$

$$\textcircled{6} \quad (\sqrt[4]{3x})^4 = (2)^4$$

$$3x = 16$$

$$x = \frac{16}{3}$$

$$\textcircled{10} \quad \sqrt[3]{6u-5} + 2 = -3$$

$$\begin{array}{r} -2 \\ -2 \end{array}$$

$$(\sqrt[3]{6u-5})^3 = (-5)^3$$

$$6u-5 = -125$$

$$6u = -120$$

$$u = -20$$

$$\textcircled{12} \quad \sqrt{9u-4} = \sqrt{7u-20}$$

$$\begin{array}{r} 9u-4 = 7u-20 \\ -7u \quad +4 \quad -7u \quad +4 \end{array}$$

$$2u = -16$$

$$u = -8$$

$$\textcircled{14} \quad \sqrt{x+10} + \sqrt{x-6} = 8$$

$$(\sqrt{x+10})^2 = (8 - \sqrt{x-6})^2 (8 - \sqrt{x-6})$$

$$x+10 = 64 - 16\sqrt{x-6} + x - 6$$

$$x+10 = 58 - 16\sqrt{x-6} + x$$

$$\begin{array}{r} -x \\ -x \end{array}$$

$$10 = 58 - 16\sqrt{x-6}$$

$$\begin{array}{r} -58 \\ -58 \end{array}$$

$$-48 = -16\sqrt{x-6}$$

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

$$9 = x-6$$

$$15 = x$$

$$\textcircled{16} \quad \sqrt{4x^2-3x+2} - 2x - 5 = 0$$

$$(\sqrt{4x^2-3x+2})^2 = (2x+5)^2 (2x+5)$$

$$\begin{array}{r} 4x^2 - 3x + 2 = 4x^2 + 20x + 25 \\ -4x^2 \quad \quad \quad -4x^2 \end{array}$$

$$\begin{array}{r} -3x + 2 = 20x + 25 \\ +3x \quad \quad \quad +3x \end{array}$$

$$-23 = 23x$$

$$\begin{array}{r} -23 \\ 23 \end{array}$$

$$-1 = x$$