

Solve each equation.

1. $7(2x-1)^{\frac{3}{4}} + 3 = 59$

2. $(x+6)^{\frac{2}{3}} - 9 = 7$

3. $\sqrt[3]{5x+7} - 11 = 114$

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

Solve each equation.

1. $7(2x-1)^{\frac{3}{4}} + 3 = 59$
 $-3 \quad -3$

$$\frac{7(2x-1)^{3/4}}{7} = \frac{56}{7}$$

$$\left[(2x-1)^{3/4}\right]^{4/3} = (8)^{4/3} \rightarrow (\sqrt[3]{8})^4$$

$$2x-1 = 16$$

$$2x = 17$$

$$x = \frac{17}{2} = 8.5$$

3. $\sqrt[3]{5x+7} - 11 = 114$
 $+11 \quad +11$

$$(\sqrt[3]{5x+7})^3 = (125)^3$$

$$5x+7 = 1,953,125$$

$$\frac{5x}{5} = \frac{1,953,118}{5}$$

$$x = 390,623.6$$

Answers

2. $(x+6)^{\frac{2}{3}} - 9 = 7$
 $+9 \quad +9$

$$\left[(x+6)^{2/3}\right]^{3/2} = (16)^{3/2} \rightarrow (\sqrt{16})^3 = (\pm 4)^3$$

$$x+6 = \pm 64 \quad = \pm 64$$

$$x = 64-6$$

$$x = -64-6$$

$$x = -70, 58$$

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

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

$$x+2 = x^2-8x+16$$

$$0 = x^2-9x+14$$

$$0 = (x-7)(x-2)$$

$$x = 2, 7$$

$$x = 7$$