

Solve each.

1. $\sqrt{11x-2} - x = 2$

2. $\frac{(4x+1)^{\frac{6}{7}}}{2} - 6 = 26$

3. $2(1-3x)^{\frac{5}{2}} + 11 = 497$

4. $3\sqrt{5x+4} + 7 = 8$

Solve each.

ANSWERS

$$1. \sqrt{11x-2} - x = 2$$

$+x \quad +x$

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

$$11x-2 = x^2+4x+4$$

$-11x \quad -11x$

$$-2 = x^2-7x+4$$

$+2 \quad +2$

$$0 = x^2-7x+6$$

$$\begin{array}{r} +6 \\ -1 \quad -6 \\ -7 \end{array}$$

$$0 = (x-1)(x-6)$$

$$x = 1, 6$$

$$2. \frac{(4x+1)^{\frac{6}{7}}}{2} - 6 = 26$$

$+6 \quad +6$

$$2. \frac{(4x+1)^{\frac{6}{7}}}{2} = 32 \cdot 2$$

$$\left[(4x+1)^{\frac{6}{7}} \right]^{\frac{7}{6}} = (64)^{\frac{7}{6}} = (\sqrt[6]{64})^7 = (\pm 2)^7 = \pm 128$$

$$4x+1 = \pm 128$$

$-1 \quad -1$

$128-1 = 127$
 $-128-1 = -129$

$$\frac{4x}{4} = \frac{127}{4}$$

$$\frac{4x}{4} = \frac{-129}{4}$$

$$x = \frac{-129}{4}, \frac{127}{4}$$

or

$$x = -32.25, 31.75$$

$$3. 2(1-3x)^{\frac{5}{2}} + 11 = 497$$

$-11 \quad -11$

$$\frac{2(1-3x)^{\frac{5}{2}}}{2} = \frac{486}{2}$$

$$\left[(1-3x)^{\frac{5}{2}} \right]^{\frac{2}{5}} = (243)^{\frac{2}{5}}$$

$$= (\sqrt[5]{243})^2$$

$$= (3)^2$$

$$1-3x = 9$$

$-1 \quad -1$

$$\frac{-3x}{-3} = \frac{8}{-3}$$

$$x = \frac{8}{-3}$$

$$4. 3\sqrt{5x+4} + 7 = 8$$

$-7 \quad -7$

$$\frac{3\sqrt{5x+4}}{3} = \frac{1}{3}$$

$$(\sqrt{5x+4})^2 = \left(\frac{1}{3}\right)^2$$

$$5x+4 = \frac{1}{9}$$

$-4 \quad -4$

$\frac{1}{9} - 4 = \frac{1}{9} - \frac{36}{9}$
 $= \frac{-35}{9}$

$$\frac{1}{5} \cdot 5x = \frac{-35}{9} \cdot \frac{1}{5}$$

$$x = \frac{-7}{9}$$