

Solving Equations
Using the Square Root
Method

$$\sqrt{144} = \boxed{12}$$

$$\sqrt{1} = \boxed{1}$$

$$\sqrt{40} = \begin{array}{c} | \quad | \quad | \\ 36 \quad 42.5 \quad 49 \\ \hline \sqrt{40} \approx \boxed{6.3} \end{array}$$

$$\sqrt{18} = \begin{array}{c} | \quad | \quad | \\ 16 \quad 20.5 \quad 25 \\ \hline \sqrt{18} \approx \boxed{4.2} \end{array}$$

$$\sqrt{115} = \begin{array}{c} | \quad | \quad | \\ 100 \quad 110.5 \quad 121 \\ \hline \sqrt{115} \approx \boxed{10.7} \end{array}$$

$$\frac{-49}{-36} = \frac{13}{13}$$

$$\frac{13}{2} = 6.5$$

$$\begin{array}{r} 36.0 \\ 6.5 \\ \hline 42.5 \end{array}$$

$$\frac{-25}{-16} = \frac{9}{9}$$

$$\frac{9}{2} = 4.5$$

$$\begin{array}{r} 16.0 \\ 4.5 \\ \hline 20.5 \end{array}$$

$$\frac{-121}{-100} = \frac{21}{21}$$

$$\frac{21}{2} = 10.5$$

$$\begin{array}{r} 100.0 \\ 10.5 \\ \hline 110.5 \end{array}$$

Square Root	Perfect Square
1	1
2	4
3	9
4	16
5	25
6	36
7	49
8	64
9	81
10	100
11	121
12	144
13	169
14	196
15	225

← 18

← 40

← 115

1. Solve each equation. Round your answer to the nearest tenth.

a) $\sqrt{x^2} = 196$

$$x = \pm 14$$

b) $\sqrt{x^2} = 24$

$$x = \pm 4.9$$

$$\begin{array}{c} | \quad | \\ 16 \quad 24 \quad 25 \\ \hline \sqrt{24} \approx 4.9 \end{array}$$

$$\text{c) } \frac{64x^2}{64} = \frac{9}{64}$$

$$\sqrt{x^2} = \sqrt{\frac{9}{64}}$$

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

$$\text{d) } \frac{3x^2}{3} = \frac{150}{3}$$

$$\sqrt{x^2} = \sqrt{50}$$

$$x = \pm 7.1$$



$$\sqrt{50} \approx 7.1$$

$$\text{e) } (x-3)^2 - 16 = 0$$
$$+16 +16$$

$$\sqrt{(x-3)^2} = \sqrt{16}$$

$$x-3 = \pm 4$$

$$x-3=4$$
$$+3 +3$$

$$x=7$$

$$x-3=-4$$
$$+3 +3$$

$$x=-1$$

$$\text{f) } (x+2)^2 - 1 = 80$$
$$+1 +1$$

$$\sqrt{(x+2)^2} = \sqrt{81}$$

$$x+2 = \pm 9$$

$$x+2=9$$
$$-2 -2$$

$$x=7$$

$$x+2=-9$$
$$-2 -2$$

$$x=-11$$

$$g) 5(x-1)^2 - 125 = 0$$

$$+125 +125$$

$$\frac{9}{5}(x-1)^2 = \frac{125}{5}$$

$$\sqrt{(x-1)^2} = \sqrt{25}$$

$$x-1 = \pm 5$$

$$x-1 = 5 \quad x-1 = -5$$

$$+1 +1 \quad +1 +1$$

$$\boxed{x = 6}$$

$$\boxed{x = -4}$$

$$h) \sqrt{(x-1)^2} = 10$$

$$x-1 = \pm 3.1$$

$$\begin{array}{c} | \text{---} | \\ 9.10 \quad 10 \end{array}$$

$$\begin{array}{r} x-1 = 3.1 \\ +1 +1.0 \\ \hline \end{array}$$

$$\boxed{x = 4.1}$$

$$\begin{array}{r} x-1 = -3.1 \\ +1 +1.0 \\ \hline \end{array}$$

$$\boxed{x = -2.1}$$

$$i) \frac{8(x+2)^2}{8} = \frac{40}{8}$$

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

$$x+2 = \pm 2.2$$

$$\begin{array}{c} | \text{---} | \\ 4.5 \quad 9 \end{array}$$

$$\begin{array}{r} x+2 = 2.2 \\ -2 -2.0 \\ \hline \end{array}$$

$$\boxed{x = .2}$$

$$\begin{array}{r} x+2 = -2.2 \\ +2 -2.0 \\ \hline \end{array}$$

$$\boxed{x = -4.2}$$