

Simplify.

For #1, both have the same meaning; take the square root.

1) $\sqrt[2]{64}$ $\sqrt{64}$
 (8) (8)
 $\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$ ✓

2) $\sqrt{16}$
 (4)
 $\begin{array}{r} 4 \\ \times 4 \\ \hline 16 \end{array}$ ✓

3) $\sqrt{49}$
 (7)
 $\begin{array}{r} 6 \quad 7 \\ \times 6 \quad \times 7 \\ \hline 36 \quad 49 \end{array}$ ✓

4) $\sqrt{40 - 4}$
 $\sqrt{36}$
 (6)

5) $\sqrt{12 + 13}$
 $\sqrt{25}$
 (5)

6) $\sqrt{-25}$
 no solution

7) $\sqrt{81}$
 (9)
 $\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$ ✓

8) $\sqrt{121}$
 (11)
 $\begin{array}{r} 10 \quad 11 \\ \times 10 \quad \times 11 \\ \hline 100 \quad 121 \end{array}$ ✓

9) $\sqrt{9}$
 (3)

10) $\sqrt{100 + 44}$
 $\sqrt{144}$
 (12)
 $\begin{array}{r} 12 \\ \times 12 \\ \hline 24 \\ 120 \\ \hline 144 \end{array}$ ✓

11) $\sqrt{20 + 21 + 8}$
 $\sqrt{49}$
 (7)

12) $\sqrt{-25}$
 (-5)

The index of 3 indicates to take the cube root.

13) $\sqrt[3]{8}$
 (2)
 $\begin{array}{r} 2 \cdot 2 \cdot 2 \\ \downarrow \\ 4 \cdot 2 \\ \downarrow \\ 8 \end{array}$ ✓

14) $\sqrt[3]{125}$
 (5)
 $\begin{array}{r} 5 \cdot 5 \cdot 5 \\ \downarrow \\ 25 \cdot 5 \\ \downarrow \\ 125 \end{array}$ ✓

15) $\sqrt[3]{64}$
 (4)
 $\begin{array}{r} 4 \cdot 4 \cdot 4 \\ \downarrow \\ 16 \cdot 4 \\ \downarrow \\ 64 \end{array}$ ✓

16) $\sqrt[3]{27}$
 (3)
 $\begin{array}{r} 3 \cdot 3 \cdot 3 \\ \downarrow \\ 9 \cdot 3 \\ \downarrow \\ 27 \end{array}$ ✓

17) $\sqrt[3]{12 - 4}$
 $\sqrt[3]{8}$
 (2)

18) $\sqrt[3]{-8}$
 (-2)
 $\begin{array}{r} -2 \cdot -2 \cdot -2 \\ \downarrow \\ 4 \cdot -2 \\ \downarrow \\ -8 \end{array}$ ✓