

10, 11, 12, 2, 3

2. a)  $\sqrt{64} = 8$

b)  $\sqrt{-64} = \text{undefined}$

c)  $\sqrt[3]{64} = 4$

d)  $\sqrt[3]{-64} = -4$

3. a)  $\sqrt{81} = 9$

b)  $-\sqrt{81} = -9$

c)  $\sqrt{-81} = \text{undefined}$

d)  $\sqrt[4]{81} = 3$

10. a)  $\sqrt{\frac{1}{16}} = \frac{1}{4}$

b)  $\sqrt{\frac{81}{16}} = \frac{9}{4}$

c)  $\sqrt[4]{\frac{1}{16}} = \frac{1}{2}$

d)  $\sqrt[4]{\frac{81}{16}} = \frac{3}{2}$

$$11. \quad a) \sqrt{10^2} = 10$$

$$b) \sqrt{10^4} = 10^2 = 100$$

$$c) \sqrt{10^6} = 10^3 = 1000$$

$$d) \sqrt{10^{20}} = 10^{10} = 1 \cdot 10^{10}$$

$$10^{\wedge} 10 = 1 \text{E} 10 = 1 \cdot 10^{10}$$

$$12) \quad \sqrt[3]{10^{-3}} = 10^{-3/3} = 10^{-1} = \frac{1}{10} = 0.1$$

$$= \sqrt[3]{\frac{1}{10^3}} = \frac{1}{10}$$

$$\sqrt[3]{10^{-6}} = 10^{-6/3} = 10^{-2} = \frac{1}{10^2} = \frac{1}{100}$$

$$\sqrt[3]{10^{-9}} = 10^{-9/3} = \frac{1}{10^3} = \frac{1}{1000} = 0.001$$

$$\sqrt[3]{10^{-30}} = \frac{1}{10^{10}} = 10^{-10} = 1 \cdot 10^{-10}$$

$$3/2$$

19.  $\frac{9x^2 = 4}{9}$   
 $\sqrt{x^2} = \sqrt{\frac{4}{9}}$   
 $x = \pm \frac{2}{3}$

$$\begin{array}{l} \sqrt{98} = \sqrt{2 \cdot 7^2} \\ \quad \wedge \\ 2 \quad 49 \\ \quad \quad \wedge \\ \quad \quad 7 \quad 7 \end{array} = \sqrt{2} \cdot \sqrt{7^2} = 7\sqrt{2}$$

$$\begin{array}{l} \sqrt{75} = \sqrt{3 \cdot 5^2} = 5\sqrt{3} \\ \quad \wedge \\ 3 \quad 25 \\ \quad \quad \wedge \\ \quad \quad 5 \quad 5 \end{array}$$

NEVER LEAVE  
RADICALS IN THE  
DENOMINATOR!!

$$\sqrt{\frac{4}{3}} = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$\sqrt{\frac{7}{2}} = \frac{\sqrt{7}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{14}}{2}$$

