# - - - 8th Grade - - - Unit 2 - - - Study Guide Answers - - -

1) **A** — No solution. (You cannot take the square root of a negative number.)

2) **D** — 5 and -5 are solutions

3) **A** and **D**

4) a. 256  b. 4^(-2)  c. 0.03125

5) **D** — 2.3 x 10^2

6) 1.7562 x 10^10 mi

7) 12 x 10^4

8) **A** — cube root of 27, square root of 10, (10/3)

9) **A** — (7/8)

10) 3/11

$$\begin{aligned} x &= 0.27272727\ldots \\ 100x &= 27.272727\ldots \end{aligned}$$

$$\begin{array}{rl} 100x = & 27.272727\ldots \\ - \quad x = & 0.272727\ldots \\ \hline 99x = & 27 \end{array}$$

$x = (27/99) = (3/11)$

11) **A** and **E**

12) $2\pi$ **>** square root of 37

13) 2.14 × 10^31

14) a. A fluorine ion is about $4 \cdot 10^{-11}$ m in diameter. A grain of sand is about $2 \cdot 10^{-5}$ m in diameter.

b. Here are two examples.

The diameter of a grain of sand is about 500,000 times the diameter of a fluorine ion.

$$\frac{2 \cdot 10^{-5}}{4 \cdot 10^{-11}} = \frac{1}{2} \cdot 10^{6} = 0.5 \cdot 1{,}000{,}000 = 500{,}000$$

OR

The diameter of a fluorine ion is about $\frac{1}{500{,}000}$ the diameter of a grain of sand.

$$\frac{4 \cdot 10^{-11}}{2 \cdot 10^{-5}} = 2 \cdot 10^{-6} = \frac{2}{1{,}000{,}000} = \frac{1}{500{,}000}$$