Review Chapters 1 & 2: Topics and Extra Practice Answer Key
Study Guide Corrections

From the Exercise and Practice section, #4 c and d.
From the Practice Test section, #3e, #8, and #12.

Chapter 1 Exercises & Problems

4. c. Boiling water to steam — Physical
   d. Fading jeans with bleach — Chemical

Chapter 1 Practice Test

3. e. Concrete — Heterogeneous

8. First determine the volume of the solid (convert all linear measurements to cm):

$$V = \left(2.0 \text{ in} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \right) \times 2.0 \text{ cm} \times \left(80.0 \text{ mm} \times \frac{1 \text{ cm}}{10 \text{ mm}} \right) = 5.1 \text{ cm} \times 2.0 \text{ cm} \times 8.00 \text{ cm} = 82 \text{ cm}^3$$

Next, rearrange the equation to solve for mass:

$$D = \frac{m}{V} \text{ so } m = D \times V \text{ so } m = D \times V = 11.4 \text{ g/cm}^3 \times 82 \text{ cm}^3 = 930 \text{ g}$$

or use D as a conversion factor:

$$m = 82 \text{ cm}^3 \times \left(\frac{11.4 \text{ g}}{1 \text{ cm}^3} \right) = 930 \text{ g}$$

12. First calculate the diameter, then convert to cm:

$$d = 2r = 2(0.125 \text{ nm}) = 0.250 \text{ nm}$$

$$d = 0.250 \text{ nm} \times \frac{1 \times 10^2 \text{ cm}}{1 \times 10^9 \text{ nm}} = 2.50 \times 10^{-8} \text{ cm}$$

$$\#\text{ Al atoms} = 1.00 \text{ cm} \times \frac{1 \text{ atom}}{2.50 \times 10^{-8} \text{ cm}} = 4.00 \times 10^7 \text{ Al atoms}$$