

## Chapter 1 Practice Problems

1. A student determined the mass of a sample contained in a beaker by subtracting the mass of the beaker alone (73.8 g) from the mass of the beaker containing the sample (75.652 g). How many significant figures should be reported for the mass of the sample?

2. 
$$\frac{12.32 - 12.22}{3.97}$$

3. 
$$\frac{8.6511}{0.08827} + \frac{4.72}{1.68}$$

4. 
$$\frac{27.92}{14.3} - \frac{879.33}{592.1}$$

5. 
$$2.3357 \times 10^{-7} + 6.92 \times 10^{-6} + 3.0223 \times 10^{-6}$$

6. 
$$7.8 \times 10^{-7} + 8.69 \times 10^{-6} + 9.923 \times 10^{-5}$$

7. Convert 0.0921 nm to pm.
  
  
  
  
  
  
  
  
  
  
8. A healthy individual had a blood glucose concentration reported as 122 mg/dL. Convert that to units of g/L.
  
  
  
  
  
  
  
  
  
  
9. A small hole in the wing of the space shuttle requires a 27.2 cm<sup>2</sup> patch. What is the patch's area in square inches?
  
  
  
  
  
  
  
  
  
  
10. Pure gold has a density of 18.9 g/cm<sup>3</sup>. Express this density in units of lb/ft<sup>3</sup>.
  
  
  
  
  
  
  
  
  
  
11. If a molecule of gas is traveling at a velocity of 875 m/s, how fast is it going in miles per hour? (1 mi = 1.6093 km)
  
  
  
  
  
  
  
  
  
  
12. An empty Erlenmeyer flask weighs 144.5 g. When completely filled with water (density = 1.00 g/cm<sup>3</sup>), the flask and its contents weigh 219.4 g. The water is removed, and the flask is completely filled with chloroform (density = 1.48 g/cm<sup>3</sup>). What is the total mass of the flask and its contents when the flask is filled with chloroform?
  
  
  
  
  
  
  
  
  
  
13. The density of mercury is 13.6 g/mL. What is the mass, in lbs, of 10.0 ft<sup>3</sup> of mercury?