

# Prep for Basic Chemistry: Competency 3 Practice

*NOTE: Please be careful to use the significant digit rules, round correctly, and include the correct units.*

- Which of the following lists arranges units from smallest to largest?  
 A 1 dg, 1 kg, 1 mg, 1 cg, 1 g  
 B 1 cg, 1 dg, 1 mg, 1 g, 1 kg  
 C 1 mg, 1 cg, 1 dg, 1 g, 1 kg  
 D 1 g, 1 dg, 1 cg, 1 mg, 1 kg
- At 100° F, water boils.  
 A True  
 B False
- Fahrenheit scale (F)  
 A sets the freezing point of water at 0°F and the boiling point of water at 100°F  
 B sets the freezing point of water at 32°F and the boiling point of water at 212°F
- Density equals mass divided by volume.  
 A True  
 B False
- A colorless substance that boils at 100°C and freezes at 32°C would most likely be water.  
 A True  
 B False
- “Mass” is  
 A a measure of the amount of matter in an object.  
 B the same as weight  
 C the starting substance in a chemical reaction.
- 123 mm = \_\_\_\_\_ cm
- 12030 m = \_\_\_\_\_ km
- 20,000 L = \_\_\_\_\_ kL
- 33 mg = \_\_\_\_\_ cg
- 80 °F = \_\_\_\_\_ °C
- 24 °C = \_\_\_\_\_ °F
- 0.0 °F = \_\_\_\_\_ °C
- 32 °C = \_\_\_\_\_ °F

*\*Continued\**

15. There are five boxes, each a different color- pink, orange, red, blue, and purple. Each box has a different mass and a different volume. Figure out the mass, volume, or density of each object from the following information:

- The orange box has a volume of  $45.0 \text{ cm}^3$  and a density of  $0.756 \text{ g/cm}^3$ . \_\_\_\_\_
- The pink box has a volume of  $48 \text{ cm}^3$  and a density of  $0.50 \text{ g/cm}^3$ . \_\_\_\_\_
- The red box has a volume of  $70.0 \text{ cm}^3$  and a mass of  $74 \text{ g}$ . \_\_\_\_\_
- The blue box has a density  $2.70 \text{ g/cm}^3$  and a mass of  $64.0 \text{ g}$ . \_\_\_\_\_

16. An object has a volume of  $55.9 \text{ cm}^3$  and a density of  $0.751 \text{ g/cm}^3$ .

Its specific gravity= \_\_\_\_\_

17. An object has a specific gravity of  $1.35$  and a mass of  $11.5 \text{ g}$ .

Its density= \_\_\_\_\_

18. An object has a mass of  $50.8 \text{ g}$  and a volume of  $18.2 \text{ cm}^3$ . Its specific gravity= \_\_\_\_\_

19.  $122 \text{ pounds} =$  \_\_\_\_\_  $\text{Kg}$

20.  $122 \text{ cm} =$  \_\_\_\_\_  $\text{inches}$

21.  $125 \text{ cm}^3 =$  \_\_\_\_\_  $\text{mL}$

22.  $13 \text{ cm}^3$  of water weighs \_\_\_\_\_  $\text{g}$ .

23.  $1.2 \text{ mL}$  of water weighs \_\_\_\_\_  $\text{g}$ .

24.  $2.5 \text{ L}$  of milk = \_\_\_\_\_  $\text{quarts}$

25.  $6.37 \text{ km} =$  \_\_\_\_\_  $\text{miles}$

Please use these Customary (English)  $\leftrightarrow$  SI (Metric) measurement conversion factors:

- $1 \text{ inch} = 2.54 \text{ centimeters}$
- $2.2 \text{ pounds} = 1 \text{ kilogram}$
- $1 \text{ quart} = 0.95 \text{ liter}$
- $1 \text{ mile} = 1.6 \text{ kilometers}$