

Chapter 1 Worksheet  
(USE SIG. FIGS.)

Number of sig. figs.:

1. 5.60002
2. 0.000020
3. 2.02456
4. 600.
5. 6000

Do the following calculations:

1.  $5.326 + 3 =$
2.  $39583 \times 8 =$
3.  $(385.004 / 92) + 45.69289 =$
4.  $(495.0 + 384.9057) / 390 =$

Density	Volume	Mass	Linear Measurement	Object
$2.56 \text{ g/cm}^3$		23 g	Side =	cube
$5.98 \text{ g/mm}^3$	76.9 L		Radius =	sphere
		4.23 g	Side = 25 nm	cube
		65 tons	Diameter = 69.9 km	sphere
	$78.5 \text{ cm}^3$	85.6 mg	Length = 56.3 mm Diameter =	cylinder

1 ton = 2000 lbs.  
1 lbs. = 453.6 g

All of the following are examples of physical properties EXCEPT

- a) the density of neon gas.
- b) the conductivity of copper wire.
- c) the boiling point of water.
- d) the frying of an egg.
- e) the density of mercury metal.

The density of acetic acid is 1.05 g/mL. What is the volume of 275 g of acetic acid?

- a)  $3.46 \times 10^{-3}$  mL
- b)  $3.82 \times 10^{-3}$  mL
- c)  $2.62 \times 10^2$  mL
- d)  $2.76 \times 10^2$  mL
- e)  $2.89 \times 10^2$  mL

You can identify a metal by carefully determining its density. A 23.1 g piece of an unknown metal is 1.23 cm long, 2.11 cm wide, and 1.00 cm thick. What is the identity of the element?

- a) nickel, 8.90 g/cm<sup>3</sup>
- b) aluminum, 2.70 g/cm<sup>3</sup>
- c) titanium, 4.54 g/cm<sup>3</sup>
- d) zirconium, 6.51 g/cm<sup>3</sup>
- e) chromium 7.20 g/cm<sup>3</sup>

The boiling point of liquid helium is  $-269\text{ }^{\circ}\text{C}$ . What is this temperature in kelvin?

- a) 1.01 K
- b) 4 K
- c) 77 K
- d) 269 K
- e) 542 K

According to the kinetic-molecular theory of matter, particles in a liquid

- a) are packed closely together in a regular array.
- b) are close together, but they are not confined to specific positions.
- c) expand to fill their container.
- d) vibrate back and forth about an average position.
- e) move slower as the temperature increases.

Which of the following is a homogeneous mixture?

- a) italian salad dressing
- b) chocolate chip ice cream
- c) gasoline
- d) a rock, such as granite or marble
- e) a jar of chunky peanut butter

A homogeneous mixture of water and sugar can be separated by \_\_\_\_\_.

What is the correct answer to the following expression:  $(27 + 93) \times 5.1558$ ?

- a)  $6.2 \times 10^2$
- b) 618.7
- c) 619
- d) 618.70
- e) 618.696

Two electronic balances are tested using a standard weight. The true mass of the standard is 1.0000 g. The results of 5 individual measurements on each balance are recorded below.

	Balance A	Balance B
	0.8888 g	1.3110 g
	0.9959 g	1.3109 g
	1.1182 g	1.3111 g
	1.0033 g	1.3110 g
	<u>0.9938 g</u>	<u>1.3110 g</u>
average mass =	1.0000 g	1.3110 g

Which statement best describes the results?

- a) A: good precision, good accuracy. B: good precision, good accuracy
- b) A: good precision, good accuracy. B: good precision, poor accuracy
- c) A: poor precision, good accuracy. B: good precision, good accuracy
- d) A: poor precision, good accuracy. B: good precision, poor accuracy
- e) A: poor precision, good accuracy. B: poor precision, poor accuracy