Name: _____ Class: _____ Date: _____

Chapter 2

1. Which of the following is equal to 0.00539?

a. 5.39×10^{3}
b. 5.39×10^{2}
c. 5.39×10^{-3}
d. 5.39×10^{-2}

ANSWER: c

2. Which of the following is equal to 623?

a. 6.23×10^{3}
b. 6.23×10^{2}
c. 6.23×10^{-3}
d. 6.23×10^{-2}

ANSWER: b

3. In the SI system of measurement, the unit of mass is the _____.

a. kilogram
b. meter
c. liter
d. yard

ANSWER: a

4. The distribution of hits on the bull's-eye shown here is described as _____.

a. both accurate and precise
b. neither accurate nor precise
c. accurate but not precise
d. precise but not accurate

ANSWER: d

5. A student measures the volume of a solution to be 0.03010 L. How many significant digits are in this measurement?

a. two
b. three
c. four

Chapter 2

d. five

ANSWER: c

6. A student measures the volume of a solution to be 0.00370 L. How many significant digits are in this measurement?

a. two
b. three
c. four
d. five

ANSWER: b

7. A sample of metal has a mass of 0.0049 grams. What is this mass in milligrams?

a. 0.0000049 mg
b. 4.9 mg
c. 490 mg
d. 4.9×10^{12} mg

ANSWER: b

8. A sample of metal has a mass of 0.0793 kilograms. What is this mass in grams?

a. 0.00000793 g
b. 793 g
c. 79.3 g
d. 7.93×10^{12} g

ANSWER: c

9. Which amount is equal to 1 mL?

a. 0.01 L
b. 1000 cm^3
c. 1 dm^3
d. 1 cm^3

ANSWER: d

10. Which amount is equal to 1 liter?

a. 0.01 L
b. 1 dm^3
c. 1 cm^3
d. 0.1 m^3

ANSWER: b

Name: _____ Class: _____ Date: _____

Chapter 2

11. A candle made of a certain wax blend burns at a rate of 34.0 milligrams/minute. What is the value of this burn rate if expressed in grams/hour?

a. 2.04 g/hr
b. 567 g/hr
c. 1,764 g/hr
d. 2,040 g/hr

ANSWER: a

12. A car is moving at 60.0 miles/hour. How many feet/second is the car traveling? (1 mile = 5,280 feet)

a. 8.80 ft/sec
b. 88.0 ft/sec
c. 880 ft/sec
d. 95.2 ft/sec

ANSWER: b

13. If a strand of hair grows 6.0 inches per year, what is the rate of hair growth in millimeters per day?

a. 0.065 mm/day
b. 86 mm/day
c. 0.16 mm/day
d. 0.42 mm/day

ANSWER: d

14. A person is walking on a treadmill and burns approximately 135 kcal/mile. If they walk 35.5 miles, how much energy have they burned in joules? (1 calorie = 4.184 joules)

a. 2.01×10^7 J
b. 4.79×10^3 J
c. 2.01×10^4 J
d. 1.15×10^6 J

ANSWER: a

15. A block of iron metal has a mass of 55.6 g. Given iron's density (7.87 g/mL), what volume does this block of iron occupy?

a. 0.142 mL
b. 438 mL
c. 7.06 mL
d. 47.8 mL

ANSWER: c

16. Liquid mercury has a density of 13.53 g/mL. What is the mass of mercury in a 65.7-mL sample?

Chapter 2

a. 889 g
b. 4.86 g
c. 0.206 g
d. 79.2 g

ANSWER: a

17. A solution has a mass of 15.03 grams and a volume of 14.4 mL. What is the density of this solution, reported to the correct number of significant digits?

a. 1.04 g/mL
b. 1.044 g/mL
c. 0.958 g/mL
d. 0.9581 g/mL

ANSWER: a

18. The density of bromine is 3.12 g/mL. What is the mass of 155 mL of bromine?

a. 0.0201 g
b. 38.2 g
c. 49.7 g
d. 484 g

ANSWER: d

19. A piece of driftwood has a density of 0.76 g/cm^3, whereas a piece of alloy has a density of 6.7 g/cm^3. Which statement is TRUE?

a. Both the driftwood and the alloy will float on pure water.
b. Neither the driftwood nor the alloy will float on pure water.
c. The driftwood will sink when placed on pure water, but the alloy will float.
d. The driftwood will float on pure water, but the alloy will sink.

ANSWER: d

20. A block of titanium metal has a mass of 104.3 g. Given titanium's density (4.51 g/cm^3), what volume does this block of titanium occupy in liters?

a. 23.1 L
b. 0.0231 L
c. 231 L
d. 0.00231 L

ANSWER: b

21. A block of titanium metal has a mass of 1.22 kg. Given titanium's density (7.87 g/cm^3), what volume does this block of titanium occupy in liters?

a. 0.155 L

Chapter 2

b. 155 L
c. 1.55 L
d. 1.55×10^{-4} L

ANSWER: a

22. Unknown sample 1 has a mass of 0.500 g and a volume of 0.750 mL. Unknown sample 2 has a mass of 12.1 g and a volume of 452 mL. Which statement is accurate concerning the two samples?

a. Unknown sample 1 has a density of 1.50 g/cm^3.
b. Unknown sample 2 has a density of 37.4 g/cm^3.
c. Unknown sample 1 has the greater density: 0.667 g/cm^3.
d. Unknown sample 2 has the greater density: 0.0268 g/cm^3.

ANSWER: c

23. A 100.0-mL sample of lead has a much greater mass than a 100.0-mL sample of quartz. Select the TRUE statement.

a. The lead sample has the greater density.
b. The quartz sample has the greater density.
c. The lead sample and the quartz sample have the same density.
d. There is not enough information to determine which sample has the greater density.

ANSWER: a

24. Which element will float on pure water?

a. iron (density = 7.87 g/cm^3)
b. copper (density = 8.96 g/cm^3)
c. gold (density = 19.31 g/cm^3)
d. None of these elements will float on pure water.

ANSWER: d

25. A solution has a mass of 17.41 grams and a volume of 14.4 mL. What is the density of this solution, reported to the correct number of significant digits?

a. 1.21 g/mL
b. 0.827 g/mL
c. 250.7 g/mL
d. 1.209 g/mL

ANSWER: a

26. On the Celsius temperature scale, the boiling point of water is _____ °C.

a. 0
b. 32

Chapter 2

c. 100
d. 212

ANSWER: c

27. Which statement is TRUE concerning temperature?
a. The freezing point of water is 0 °F.
b. The boiling point of water is 32 °C.
c. One degree Celsius is a greater unit than 1 degree Fahrenheit.
d. One degree Fahrenheit is a greater unit than 1 degree Celsius.

ANSWER: c

28. 285.2 K is also _____ °C.
a. –261.10
b. 12.10
c. 53.69
d. 100

ANSWER: b

29. Which temperature is the HOTTEST?
a. 516 K
b. 234 °C
c. 475 °F
d. All of the temperatures are the same.

ANSWER: c

30. Which temperature is the COLDEST?
a. 116 K
b. –20 °C
c. –105 °F
d. All of the temperatures are the same.

ANSWER: a

31. 285.2 K is also _____ °F.
a. –261.1
b. 12.05
c. 53.69
d. 100.0

ANSWER: c

32. Select the temperature scale that scientists use for very low temperatures as well as to predict the way gases behave.

Chapter 2

a. Celsius
b. Fahrenheit
c. Kelvin
d. All of these temperature scales are used for these purposes.

ANSWER: c

33. Select the temperature scale that MOST of the world uses.
a. Celsius
b. Fahrenheit
c. Kelvin
d. All of these temperature scales are used equally around the world.

ANSWER: a

34. The average normal body temperature is 98.6 °F. Three children have their temperature taken at a doctor's office. The first child has a temperature of 310 K. The second child has a body temperature of 98.5 °F. The third child has a body temperature of 38.3 °C. Which child is running a fever (has a temperature greater than 100 °F)?
a. the first child
b. the second child
c. the third child
d. All of the children are running a fever.

ANSWER: c

35. On a day in August, the temperature is predicted to reach a high of 124 °F. What is this temperature in kelvins?
a. 397 K
b. 324 K
c. 51.1 K
d. 528 K

ANSWER: b