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Chapter 02— Measurements and Calculations

1. Express 1230000 in scientific notation.

a. 3.62×10^{-8}

b. 1.23×10^{-6}

c. 1.23×10^{6}

d. 123×10^{6}

e. 123×10^{4}

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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2. Express 30529000 in scientific notation.

a. 3×10^{7}

b. 3.0529×10^{7}

c. 305×10^{7}

d. 30529×10^{3}

e. 305290×10^{7}

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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3. Write 8,323 in standard scientific notation.

a. 8323

b. 8.323×10^{-3}

c. 832.3×10^{1}

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d. 8.323×1000

e. 8.323×10^3

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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4. The number 0.001 expressed in exponential notation is

a. 1×10^3

b. 1×10^4

c. 1×10^{-3}

d. 1×10^{-4}

e. none of these

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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5. The number 0.00288 expressed in exponential notation is

a. 2.88×10^3

b. 2.88×10^{-2}

c. 288×10^3

d. 2.88×10^2

e. 2.88×10^{-3}

ANSWER: e
POINTS: 1
DIFFICULTY: easy

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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6. Express the number 178414 in scientific notation.

a. 1.78414×10^{-5}
b. 1.78414×10^{5}
c. 1.78×10^{5}
d. 178.414×10^{3}
e. 1.8×10^{-5}

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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7. The number 200,000 expressed in scientific notation is

a. 2.0×10^{5}
b. 2.0×10^{-5}
c. 20×10^{4}
d. 200×10^{3}
e. 2×10^{5}

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures

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8. Express the number 0.00382 in scientific notation.

a. 3.82×10^{-3}
b. 3.82×10^{3}
c. 0.382×10^{-3}
d. 382×10^{-5}
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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9. 2.7 kilograms contain this many grams.

a. 2.7×10^{3}
b. 2.7×10^{2}
c. 2.7×10^{1}
d. 2.7×10^{-2}
e. 2.7×10^{-3}

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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10. How many milliliters are in 0.063 L?

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a. 0.63 mL
b. 6.3 mL
c. 6.3×10^2 mL
d. 6.3×10^1 mL
e. 6.3×10^3 mL

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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11. The measurement 3.8×10^3g could also be written as _____.

a. 3.8 g
b. 3.8 mg
c. 3.8 pg
d. 3.8 kg
e. 3.8 dg

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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12. How many millimeters are in 5.62×10^2 centimeters?

a. 5.62×10^2 mm
b. 5.62×10^1 mm
c. 5.62×10^3 mm
d. 5.62 mm
e. 5.62×10^{-2} mm

ANSWER: c

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POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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13. Convert: 7.7 mm = _____ km.

a. 7.7×10^{-6}
b. 7.7×10^{-3}
c. 7.7×10^{3}
d. 7.7×10^{6}
e. 7.7×10^{2}

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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14. Convert: 91.1 L = _____ mL.

a. 9.11×10^{3} mL
b. 9.11×10^{4} mL
c. 9.11×10^{-1} mL
d. 9.11×10^{-2} mL
e. 9.11 mL

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement

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KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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15. Convert: 8.21×10^2 g = _____ kg.

a. 8.21×10^5 kg
b. 8.21 kg
c. 0.821 kg
d. 8.21×10^4 kg
e. 0.0821 kg

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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16. Convert: 87.9 cm = _____ m.

a. 8.79×10^3 m
b. 8.79×10^4 m
c. 0.0879 m
d. 0.879 m
e. 8.79 m

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
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17. 4.1 milliseconds is equal to how many seconds?

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a. 4.1×10^{3} s
b. 4.1×10^{2} s
c. 4.1×10^{-3} s
d. 4.1×10^{-2} s
e. 0.41 s

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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18. The fundamental unit of length in the metric system is the _____.
a. kilometer
b. meter
c. centimeter
d. gram
e. milliliter

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Units
KEYWORDS: base unit | si unit
OTHER: general chemistry
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19. The number of milligrams in 1.0 kg is
a. 1.0×10^{3} mg
b. 1.0×10^{6} mg
c. 1.0×10^{-3} mg
d. 1.0×10^{-6} mg
e. 1.0×10^{2} mg

ANSWER: b

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POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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20. The SI prefix that corresponds to a factor of 10^{-3} is
    a. milli
    b. centi
    c. deci
    d. kilo
    e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: prefixes | si unit
OTHER: general chemistry
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21. Which metric prefix is used to designate 1/10?
    a. d
    b. c
    c. m
    d. M
    e. k

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: prefixes | si unit

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22. The number of milliliters in 0.0914 liter is

a. 9.14×10^{-5} mL
b. 91.4 mL
c. 9.14 mL
d. 914 mL
e. 9.14×10^{3} mL

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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23. Which of the following is an SI unit for expressing the mass of a block of gold?

a. m
b. g
c. L
d. pound

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Units
KEYWORDS: base unit | si unit
OTHER: general chemistry
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24. A cubic centimeter (cm^3) is equivalent to what other metric volume unit?

a. milliliter
b. liter
c. deciliter

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d. centimeter

e. millimeter

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: si unit | volume
OTHER: general chemistry
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25. Convert: 443.2 mm = _____ m.

a. 4.432×10^5 m

b. 4.432×10^4 m

c. 4.432 m

d. 44.32 m

e. 0.4432 m

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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26. The number of cubic centimeters (cm^3) in 63.7 mL is _____.

a. $0.0637\ cm^3$

b. $6.37\ cm^3$

c. $63.7\ cm^3$

d. None of these

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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27. Using the rules of significant figures, calculate the following:
30 + 4.207

a. 30
b. 35
c. 34.21
d. 34.207
e. 34

ANSWER: a
RATIONALE: 30
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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28. Using the rules of significant figures, calculate the following:
15.9743 - 3.02

a. 12.95
b. 13
c. 12.9543
d. 12.954
e. 12

ANSWER: a
RATIONALE: 12.95
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry

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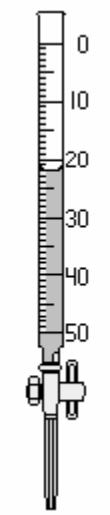
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29. Calculate the following using the rules of significant figures:
12.67 + 13.005 =

a. 25.675
b. 25
c. 20
d. 25.68
e. 26

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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30. Using zero as your reference point, how much liquid has left the buret? Use the correct number of significant figures.



a. 20 mL
b. 22 mL
c. 22.0 mL
d. 38 mL
e. 38.0 mL

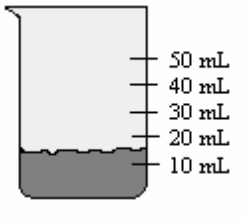
ANSWER: c
POINTS: 1

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DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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31. 20.0 mL of water from a graduated cylinder is added to a beaker of water as shown below. What is the new volume of water in the beaker?



a. 40 mL
b. 40.0 mL
c. 35 mL
d. 35.0 mL
e. 25.0 mL

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Uncertainty in Measurements
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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32. How many significant figures are in the number 1.89×10^3?

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: c
POINTS: 1
DIFFICULTY: easy

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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33. The number 3.00315 rounded to four significant figures is
    a. 3
    b. 3.004
    c. 3.000
    d. 3.315
    e. none of these

ANSWER: a
RATIONALE: 3
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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34. How many significant figures are in the number 60.02×10^5?
    a. 2
    b. 3
    c. 4
    d. 5
    e. None of these

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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35. The number 14.809 rounded to three significant figures is _____.

a. 15.0
b. 14.9
c. 14.81
d. 14.809
e. 14.8

ANSWER: e
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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36. Round 23,456 to four significant figures.

ANSWER: 23,460
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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37. Round 0.0004583 to three significant figures and express it in scientific notation.

ANSWER: 4.58×10^{-4}
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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38. How many significant figures are in the number 34.00500?

a. 3
b. 4
c. 5
d. 6
e. 7

ANSWER: e
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: significant figures
OTHER: general chemistry
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39. How many significant figures are in the number 1000.0?

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: significant figures
OTHER: general chemistry
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40. How many significant figures are in the measurement 12.3004 g?

a. 6
b. 5
c. 4
d. 3
e. 2

ANSWER: a
POINTS: 1

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DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: significant figures
OTHER: general chemistry
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41. How many significant figures are in the number 1.20×10^3?
    a. 1
    b. 2
    c. 3
    d. 4
    e. 5

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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42. In the sum of 54.34 + 45.66, the number of significant figures is
    a. 2
    b. 3
    c. 4
    d. 5
    e. 6

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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43. How many significant figures are in the number 3.400?

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: significant figures
OTHER: general chemistry
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44. The number 243.306 rounded off to five significant figures is _____.

a. 243.31
b. 243.36
c. 243.30
d. 243.00
e. None of these

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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45. A student finds that the weight of an empty beaker is 16.600 g. She places a solid in the beaker to give a combined mass of 16.629 g. To how many significant figures is the mass of the solid known?

a. 2
b. 3
c. 1
d. 5
e. 4

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ANSWER: a
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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46. What is the result of the following multiplication expressed in scientific notation to the correct number of significant figures?
$(5.45 \times 10^{3})(6.0 \times 10^{-3})$

a. 3.3×10^{1}
b. 3.27×10^{1}
c. 3.2×10^{-1}
d. 3×10^{1}
e. 3.27×10^{1}

ANSWER: a
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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47. How many significant figures are in the number 19.8030?

a. 6
b. 5
c. 4
d. 3
e. 2

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures

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KEYWORDS: significant figures
OTHER: general chemistry
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48. How many significant figures are in the result of the calculation below?
$(4.321/2.8) \times (6.9234 \times 10^5)$

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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49. The result of the following calculation has how many significant figures?
(0.4333 J/g °C) (33.12°C – 31.12°C)(412.1 g)

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: c
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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50. How many significant figures are in the number 4.00700×10^{13}?

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a. 2
b. 4
c. 5
d. 6
e. none of these

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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51. How many significant figures are in the number 0.02020×10^{15}?

a. 3
b. 4
c. 5
d. 6
e. 19

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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52. How many significant figures are in the measurement 0.2010 g?

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: d
POINTS: 1

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DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: significant figures
OTHER: general chemistry
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53. The product of $0.1400 \times 6.02 \times 10^{23}$ will have how many significant figures?

a. 2
b. 3
c. 23
d. 10^{23}
e. 7

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: rounding | significant figures
OTHER: general chemistry
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54. How many significant figures are there in the result of the calculation below?
4.1/7.464

a. 7
b. 4
c. 3
d. 2
e. 1

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: rounding | significant figures
OTHER: general chemistry

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55. How many significant figures are in the number 0.00204?

a. 3
b. 5
c. 2
d. 6
e. 4

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: significant figures
OTHER: general chemistry
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56. How many significant figures are in the number 123.00015?

a. 5
b. 6
c. 7
d. 8
e. 9

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: significant figures
OTHER: general chemistry
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57. How many significant figures are in the number 0.0040090?

a. 8
b. 7
c. 6
d. 5

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e. 4

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: significant figures
OTHER: general chemistry
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58. How many significant figures are in the number 10.050?

a. 1
b. 2
c. 3
d. 4
e. 5

ANSWER: e
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Significant Figures
KEYWORDS: significant figures
OTHER: general chemistry
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59. Write the number 345.626 in scientific notation.

a. 345.626
b. 3.45626×10^{-2}
c. 34.5626×10^{2}
d. 0.345626×10^{3}
e. 3.45626×10^{2}

ANSWER: e
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Scientific Notation

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KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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60. Write the number 0.0005081 in scientific notation.

a. 5.081×10^{4}
b. 0.5081×10^{-3}
c. 5.081×10^{-4}
d. 50.81×10^{-5}
e. none of these

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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61. Convert 798.9 m to decimeters.

a. 7.989×10^{4} dm
b. 79.89 dm
c. 7.989 dm
d. 7.989×10^{3} dm
e. none of these

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
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62. Convert 683.8 L to milliliters.

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a. 0.6838 mL
b. 6.838 mL
c. 683.8 mL
d. 6.838×10^3 mL
e. 6.838×10^5 mL

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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63. Convert 409.3 qt to milliliters (1 L = 1.060 qt).

a. 4.093×10^5 mL
b. 3.861×10^5 mL
c. 4.339×10^5 mL
d. 386.1 mL
e. none of these

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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64. Convert 5.87 kg to pounds (1 lb = 453.6 g).

a. 12.9 lb
b. 1.29×10^{-2} lb
c. 2662.63×10^3 lb
d. 2.66 lb
e. 2.66×10^6 lb

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ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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65. Convert 212113.0 mm to kilometers.
   a. 2.121130 km
   b. 0.2121130 km
   c. 212.1130 km
   d. 2121.130 km
   e. 3.167180×10^{11} km

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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66. Convert 0.5200 L to centiliters.
   a. 0.005200 cL
   b. 520.0 cL
   c. 52.00 cL
   d. 0.05200 cL
   e. 5.200 cL

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts

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	measurement
KEYWORDS:	conversion factor | factor label method
OTHER:	general chemistry
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67. Convert 786.5 mi to kilometers (1 m = 1.094 yd; 1 mi = 1760. yd).

a. 4.889×10^{-4} km

b. 1.265×10^{6} km

c. 860.4 km

d. 4.469×10^{-1} km

e. 1.265×10^{3} km

ANSWER:	e
POINTS:	1
DIFFICULTY:	moderate
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
TOPICS:	general concepts measurement
KEYWORDS:	conversion factor | factor label method
OTHER:	general chemistry
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68. Convert 22.9 cm to inches (2.54 cm = 1 in).

a. 58.2 in

b. 5.82 in

c. 9.02 in

d. 90.2 in

e. 0.902 in

ANSWER:	c
POINTS:	1
DIFFICULTY:	easy
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
TOPICS:	general concepts measurement
KEYWORDS:	conversion factor | factor label method
OTHER:	general chemistry
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69. Convert 0.084 ft^3 to liters (28.32 L = 1 ft^3).

a. 3.0×10^{-3} L
b. 0.24 L
c. 24 L
d. 2.4×10^{-2} L
e. 2.4 L

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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70. Convert 7.25 kg to pounds (1 kg = 2.205 lb).

a. 16.0 lb
b. 3.29 lb
c. 1.60 lb
d. 32.9 lb
e. 0.329 lb

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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71. Convert: 0.742 mm = _____ m.

a. 7.42×10^{-4}
b. 7.42×10^{-3}
c. 7.42×10^{2}
d. 74.2

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e. 7.42×10^{-5}

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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72. Convert: 0.00581 cm = _____ mm.

a. 5.81 mm
b. 5.81×10^{-2} mm
c. 0.581 mm
d. 5.81×10^{-4} mm
e. 5.81×10^{-5} mm

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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73. Convert: 9.32 qt = _____ mL.

a. 9.88 mL
b. 9.88×10^{3} mL
c. 8.79×10^{3} mL
d. 8.79 mL
e. 1.64×10^{4} mL

ANSWER: c
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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74. Convert: 23.7 cc = _____ mL.

a. 237 mL
b. 2.37×10^3 mL
c. 2.37 mL
d. 23.7 mL
e. 0.237 mL

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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75. Convert: 7.82 mL = _____ qt.

a. 8.29 mL
b. 7.38 mL
c. 7.38×10^3 mL
d. 1.38×10^4 mL
e. 8.29×10^{-3} mL

ANSWER: e
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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76. Convert: 844.7 qt = _____ mL.

a. 8.447×10^{5} mL

b. 895.4 mL

c. 8.954×10^{-1} mL

d. 1.487×10^{6} mL

e. 7.969×10^{5} mL

ANSWER: e
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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77. Convert: 3.45 in = _____ mm.

a. 87.6 mm

b. 8.76 mm

c. 1.358 mm

d. 0.88 mm

e. 876 mm

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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78. Convert: 97.0 mg = _____ lb.

a. 2.14×10^{2} lb

b. 9.70×10^{-5} lb

c. 4.40×10^{7} lb

d. 4.28×10^{-4} lb

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e. 2.14×10^{-4} lb

ANSWER: e
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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79. Convert: 82.7 °F = _____ K.

a. 298.8
b. 351.5
c. –194.5
d. –247.2
e. 471.9

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Temperature Conversions: An Approach to Problem Solving
KEYWORDS: Fahrenheit scale | Kelvin
OTHER: general chemistry
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80. Convert: 81.5°C = _____ °F.

a. 178.7°F
b. 146.7°F
c. 114.7°F
d. 77.3°F
e. 13.3°F

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement

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KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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81. Convert: 793.3 K = _____ °C.
    a. 1066.3°C
    b. 520.3°C
    c. 1459.9°C
    d. 472.7°C
    e. 440.7°C

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Kelvin
OTHER: general chemistry
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82. Convert: 17.5°F = _____ °C.
    a. 27.50°C
    b. –26.10°C
    c. –8.06°C
    d. 89.10°C
    e. 290.5°C

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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83. 483.7 K equals
    a. 210.7°F

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b. 870.7°C
c. 756.7°F
d. 210.7°C
e. 756.7°C

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Kelvin
OTHER: general chemistry
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84. What Kelvin temperature reading equals 69.9°F?
a. –251.9 K
b. 341.2 K
c. –204.8 K
d. 329.6 K
e. 294.1 K

ANSWER: e
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Fahrenheit scale | Kelvin
OTHER: general chemistry
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85. Convert: –22.2 °F = _____ °C.
a. –30.1
b. 5.4
c. –97.6
d. 17.6
e. 250.8

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate

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HAS VARIABLES: True
TOPICS: Temperature Conversions: An Approach to Problem Solving
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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86. Convert: –38.0°C = _____ °F.
    a. –100.4°F
    b. –36.4°F
    c. 10.9°F
    d. –53.1°F
    e. –68.4°F

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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87. 254.6°F is equivalent to
    a. 159.2°C
    b. 123.7°C
    c. 400.7°C
    d. 515.9°C
    e. 141.4°C

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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88. Convert: 18.7°F = _____ °C.

a. 28.17°C
b. –23.94°C
c. 91.26°C
d. –7.39°C
e. 10.39°C

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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89. What is the Celsius equivalent of 948.2 K?

a. 1221.2°C
b. 1738.8°C
c. 509.0°C
d. 1706.8°C
e. 675.2°C

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Kelvin
OTHER: general chemistry
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90. Convert: –28.0°C = _____ °F.

a. –82.4°F
b. 16.4°F
c. –18.4°F
d. –47.6°F
e. –50.4°F

ANSWER: c

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POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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91. Convert: 80.6°C = _____ K.
    a. –192.4 K
    b. 192.4 K
    c. 145.1 K
    d. 353.6 K
    e. 27.0 K

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Kelvin
OTHER: general chemistry
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92. Cesium melts at 302 K and boils at 944 K. What would be the physical state of cesium at 25°C?
ANSWER: Solid
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: Temperature Conversions: An Approach to Problem Solving
KEYWORDS: Kelvin | temperature
OTHER: general chemistry
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93. If 1.000 kg equals 2.205 lb, what is the mass in pounds of a human who weighs 92.43 kg?
    a. 203.8 lb
    b. 41.92 lb

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c. 183.8 lb
d. 94.64 lb
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: conversion factor | factor label method
OTHER: general chemistry
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94. The Celsius equivalent of 195.7 K is
a. 468.7°C
b. 195.7°C
c. 295.7°C
d. –77.3°C
e. 384.3°C

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Kelvin
OTHER: general chemistry
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95. 44.8°C is equal to
a. 112.6°F
b. 48.6°F
c. –228.2 K
d. 7.1°F
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multiple Choice

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HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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96. Convert: 19.5°C = _____ °F.
    a. 3.1°F
    b. 42.8°F
    c. –21.2°F
    d. 35.1°F
    e. 67.1°F

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Fahrenheit scale
OTHER: general chemistry
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97. Convert: –60.7°C = _____ K.
    a. –333.7 K
    b. 333.7 K
    c. 212.3 K
    d. 109.3 K
    e. 33.7 K

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: Celsius scale | Kelvin
OTHER: general chemistry
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98. Density is an example of a _____.

a. chemical property
b. physical property
c. qualitative property
d. chemical change
e. physical change

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Density
KEYWORDS: physical property
OTHER: general chemistry
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99. Water has a density of 1.0 g/mL. Which of these objects will float in water?
Object I: mass = 50.0 g; volume = 53.1 mL
Object II: mass = 71.7 g; volume = 51.4 mL
Object III: mass = 100.0 g; volume = 50.0 mL

a. I only
b. I, III
c. II only
d. II, III
e. III only

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
matter
KEYWORDS: physical property
OTHER: general chemistry
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100. Calculate the mass of a rectangular solid that has a density of 2.95 g/cm^3 and measures 2.50 cm by 1.80 cm by 3.00 cm.

a. 4.58 g
b. 39.8 g
c. 7.38 g

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d. 21.5 g

e. 42.8 g

ANSWER: b
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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101. Find the volume of an object that has a density of 3.14 g/mL and a mass of 74.0 g.

a. 23.6 mL

b. 4.24×10^{-2} mL

c. 232 mL

d. 2.36×10^{-2} mL

e. 2.32×10^{5} mL

ANSWER: a
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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102. An experiment requires 24.5 g of ethyl alcohol (density = 0.790 g/mL). What volume of ethyl alcohol, in liters, is required?

a. 1.94×10^{-2} L

b. 3.22×10^{-5} L

c. 19.4×10^{4} L

d. 3.10×10^{-2} L

e. 19.4 L

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Density
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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103. At 20°C the density of mercury is 13.6 g/cm^3. What is the mass of 39.8 mL of mercury at 20°C?

a. 5.41×10^2 g
b. 2.93 g
c. 1.00 g/mL
d. 0.342 g
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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104. If a 100.-g sample of platinum metal has a volume of 5 mL, what is the density of platinum in g/cm^3?

a. 21.4 g/cm^3
b. 2.14 g/cm^3
c. 0.0467 g/cm^3
d. 467 g/cm^3
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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105. An experiment requires 52.5 mL of ethyl alcohol. If the density of ethyl alcohol is 0.790 g/cm^3, what is the mass of 52.5 mL of ethyl alcohol?

a. 66.5 g
b. 15.0 g
c. 41.5 g
d. 4.15×10^{-2} g
e. None of these

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Density
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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106. If a 100.-g sample of a metal has a volume of 3.47 mL, what is the density of the metal?

a. 28.8 g/mL
b. 2.88 g/mL
c. 0.0347 g/mL
d. 3 g/mL
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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107. The volume (in milliliters) occupied by 49.7 g of mercury (density = 13.6 g/mL) is

a. 676 mL
b. 3.65 mL
c. 0.274 mL
d. 36.1 mL

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e. none of these

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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108. The density of copper is 8.92 g/mL. The mass of a piece of copper that has a volume of 10.7 mL is

a. 0.954 g
b. 954 g
c. 95.4 g
d. 9.54×10^{-2} g
e. none of these

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dipole-dipole forces | factor label method
OTHER: general chemistry
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109. The density of gold is 19.3 g/mL. What is the volume of a gold nugget that weighs 79.3 g?

a. 1.53×10^{3} mL
b. 4.11 mL
c. 0.243 mL
d. 60.0 mL
e. none of these

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts

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	measurement
KEYWORDS:	dimensional analysis | factor label method
OTHER:	general chemistry
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110. Aluminum has a density of 2.70 g/cm^3. What is the mass of a rectangular block of aluminum measuring 11.1 cm by 22.2 cm by 34.6 cm?

a. 183 kg
b. 3.16×10^3 kg
c. 0.317 kg
d. 23.0 kg
e. none of these

ANSWER:	d
POINTS:	1
DIFFICULTY:	moderate
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	True
TOPICS:	general concepts measurement
KEYWORDS:	dimensional analysis | factor label method
OTHER:	general chemistry
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111. An object has a mass of 40.1 g and occupies a volume of 9.86 mL. The density of this object is

a. 395 g/mL
b. 0.246 g/mL
c. 4.07 g/mL
d. too low to measure
e. 40.1 g/mL

ANSWER:	c
POINTS:	1
DIFFICULTY:	easy
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
TOPICS:	general concepts measurement
KEYWORDS:	density | si unit
OTHER:	general chemistry
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112. What volume would be occupied by a piece of aluminum (density = 2.70 g/mL) weighing 67.7 g?

a. 183 mL
b. 3.99×10^{-2} mL
c. 25.1 mL
d. 2.51 mL
e. none of these

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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113. A graduated cylinder contains 20.0 mL of water. An irregularly shaped object is placed in the cylinder, and the water level rises to the 31.2-mL mark. If the object has a mass of 63.1 g, what is its density?

a. 5.63 g/mL
b. 0.177 g/mL
c. 2.02 g/mL
d. 3.16 g/mL
e. none of these

ANSWER: a
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: density | si unit
OTHER: general chemistry
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114. A piece of an unknown metal weighs 477.7 g and occupies a volume of 72.2 mL. What is the density of this metal?

a. 3.45×10^{4} g/mL
b. 6.62 g/mL
c. 0.151 g/mL
d. 66.2 g/mL

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e. none of these

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: density | si unit
OTHER: general chemistry
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115. A sample of an unknown metal (density = 4.920 g/mL) weighs 740.4 g. What is the volume of this piece of metal?

a. 3.643×10^{3} mL
b. 6.645×10^{-3} mL
c. 150.5 mL
d. 1.505×10^{5} mL
e. none of these

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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116. The density of an object that has a mass of 7.86 g and occupies a volume of 1.20 mL equals

a. 7.86 g/mL
b. 1.20 g/mL
c. 6.55 g/mL
d. 0.15 g/mL
e. 9.43 g/mL

ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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TOPICS: general concepts
measurement
KEYWORDS: density | si unit
OTHER: general chemistry
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117. An empty graduated cylinder weighs 55.26 g. When filled with 60.5 mL of an unknown liquid, it weighs 92.39 g. The density of the unknown liquid is

a. 37.13 g/mL
b. 60.5 g/mL
c. 0.614 g/mL
d. 1.63 g/mL
e. 2.25×10^3 g/mL

ANSWER: c
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: density | si unit
OTHER: general chemistry
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118. A solid object with a volume of 5.62 mL weighs 108 g. Would this object float or sink in mercury? Explain. (Density of Hg = 13.6 g/mL)

ANSWER: The object would sink. Density (d) of the object = 19.2 g/mL. d (object) > d(Hg).
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: Density
KEYWORDS: density | si unit
OTHER: general chemistry
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119. Copper has a density of 8.96 g/cm^3. If a cylinder of copper weighing 20.92 g is dropped into a graduated cylinder containing 20.00 mL of water, what will be the new water level?

a. 2.33 mL
b. 0.428 mL

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c. 17.67 mL
d. 22.33 mL
e. 31.29 mL

ANSWER: d
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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120. A chemist needs 28.7 g of bromine for an experiment. What volume of bromine should the chemist use? (Density of bromine = 3.12 g/cm^3)

a. 0.109 mL
b. 28.7 mL
c. 89.5 mL
d. 25.6 mL
e. 9.20 mL

ANSWER: e
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Density
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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121. A chunk of sulfur has a volume of 5.95 cm^3. What is the mass of this sulfur? (Density of sulfur = 2.07 g/cm^3.)

a. 0.348 g
b. 5.95 g
c. 2.87 g
d. 3.88 g
e. 12.3 g

ANSWER: e
POINTS: 1

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DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis | factor label method
OTHER: general chemistry
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122. One side of a backyard fence measures 336 inches in length. How many feet does this represent?
a. 28.0 ft
b. 4032. ft
c. 0.0357 ft
d. 132. ft
e. 853. ft
ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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123. A golfer putted a golf ball 7.5 ft across a green. How many inches does this represent?
a. 0.63 in
b. 3.0 in
c. 90. in
d. 1.6 in
e. 0.34 in
ANSWER: c
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry

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124. How many centimeters are in 15.6 inches?

a. 6.14 cm
b. 0.163 cm
c. 18.1 cm
d. 39.6 cm
e. 187. cm

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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125. An iron sample has a mass of 2.71 lb. What is the mass of this sample in grams?

a. 5.97 g
b. 1.23×10^{3} g
c. 1.23×10^{-3} g
d. 5.97×10^{3} g
e. 2.71×10^{3} g

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: mass | si unit
OTHER: general chemistry
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126. A dining room table measures 4.0 feet in length. How many inches does this represent?

a. 0.33 in
b. 3.0 in

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c. 16. in
d. 1.6 in
e. 48. in

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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127. How many cups are in a 51-oz pitcher of lemonade? (8 fluid oz = 1 cup)
a. 408 cups
b. 0.16 cup
c. 59 cups
d. 43 cups
e. 6.4 cups

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: si unit | volume
OTHER: general chemistry
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128. Perform the following conversion: 5.87 m/s = _____ km/h
a. 21.1
b. 0.352
c. 1.63
d. 613
e. 170

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)

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HAS VARIABLES: True
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: si unit | time
OTHER: general chemistry
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129. Perform the following conversion: 6.69 m/s = _____ mi/h

a. 0.334 mi/h
b. 15.0 mi/h
c. 241 mi/h
d. 249 mi/h
e. 13.4 mi/h

ANSWER: b
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: si unit | time
OTHER: general chemistry
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130. Baking soda and vinegar are mixed in a balloon. A gas is produced, and the balloon expands to a volume of 4.70 L. What is the volume of the balloon in cm^3?

a. 4.70×10^3 cm^3
b. 47.0 cm^3
c. 0.470 cm^3
d. 4.70×10^{-3} cm^3
e. 4.70×10^2 cm^3

ANSWER: a
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: si unit | volume
OTHER: general chemistry
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131. An object is 140.7 inches in height. Express this height in centimeters.

a. 55.39 cm
b. 0.01805 cm
c. 11.73 cm
d. 357.4 cm
e. 143.2 cm

ANSWER: d
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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132. An object is 158.6 inches in height. Express this height in feet.

a. 0.07566 ft
b. 1903 ft
c. 62.44 ft
d. 402.8 ft
e. 13.22 ft

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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133. A toy measures 38.7 cm in length. How many inches does this represent?

a. 15.2 in
b. 98.3 in
c. 0.0656 in
d. 3.23 in

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e. 464 in

ANSWER: a
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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134. A runner jogs 4.5 miles every morning. How many kilometers does this represent?

a. 2.8 km
b. 7.2 km
c. 54 km
d. 0.36 km
e. 2.9 km

ANSWER: b
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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135. How many quarts are in a 14.0-gal cooler of fruit punch? (1 gal = 4 qt)

a. 3.50 qt
b. 0.286 qt
c. 18.0 qt
d. 10.0 qt
e. 56.0 qt

ANSWER: e
POINTS: 1
DIFFICULTY: easy
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts

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	measurement
KEYWORDS:	si unit | volume
OTHER:	general chemistry
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136. A car tire has a pressure of 48 psi (pounds per square inch). What is the pressure of the tire in atm (atmospheres)? (1 atm = 14.70 psi)

a. 3.3 atm
b. 0.31 atm
c. 63. atm
d. 33. atm
e. 706. atm

ANSWER:	a
POINTS:	1
DIFFICULTY:	easy
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
TOPICS:	general concepts measurement
KEYWORDS:	base unit | si unit
OTHER:	general chemistry
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137. How many liters are in a 15-oz bottle of pop?
(1 qt = 32 fluid oz)
(1 L = 1.0567 qt)

a. 0.47 L
b. 0.50 L
c. 2.3 L
d. 0.44 L
e. 2.0 L

ANSWER:	d
POINTS:	1
DIFFICULTY:	moderate
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
TOPICS:	general concepts measurement
KEYWORDS:	si unit | volume
OTHER:	general chemistry
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138. Your friend is 5.0 ft, 8.2 in tall. What is your friend's height in meters?

a. 0.34 m
b. 1.7 m
c. 34. m
d. 27. m
e. 68. m

ANSWER: b
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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139. A cat weighs 7.9 lb. What is the mass of the cat in kilograms? (1 kg = 2.2046 lb)

a. 17 kg
b. 0.28 kg
c. 3.6 kg
d. 10.1 kg
e. 7.9 kg

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: mass | si unit
OTHER: general chemistry
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140. A walker travels a distance of 1.4 miles. How many inches did the walker travel?
(1 mi = 5280. ft)
(1 ft = 12 in)

a. 7.4×10^3 in
b. 6.2×10^2 in
c. 17. in
d. 8.6 in

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e. 8.9×10^4 in

ANSWER: e
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: length | si unit
OTHER: general chemistry
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141. A person has a mass of 8.28×10^4 g. What is this person's mass in pounds? (1 kg = 2.2046 lb)

a. 1.83×10^5 lb
b. 3.76×10^4 lb
c. 183. lb
d. 82.8 lb
e. 828. lb

ANSWER: c
POINTS: 1
DIFFICULTY: moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: mass | si unit
OTHER: general chemistry
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142. The volume of a helium balloon is 2.2 L. What is this volume in cm^3? (1 L = 1 dm^3)

a. 22. cm^3
b. 2.2×10^3 cm^3
c. 2.2×10^2 cm^3
d. 0.22 cm^3
e. 2.2×10^4 cm^3

ANSWER: b
POINTS: 1
DIFFICULTY: moderate

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: si unit | volume
OTHER: general chemistry
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143. Which SI prefix corresponds to a factor of 10^{-9}?

a. Nano b. Micro
c. Mega d. Milli
e. Kilo

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: 2.2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: Units
KEYWORDS: prefixes | SI unit
OTHER: general chemistry
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144. What is the value of the SI prefix micro

a. 10^{-6} b. 10^{6}
c. 10^{-9} d. 10^{-3}
e. 10^{3}

ANSWER: a
POINTS: 1
DIFFICULTY: easy
REFERENCES: 2.2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: prefixes | SI unit
OTHER: general chemistry
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145. What is the value of the SI prefix milli

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a. 10^{-3} b. 10^{3}
c. 10^{-2} d. 10^{-6}
e. 10^{6}

ANSWER: a
POINTS: 1
DIFFICULTY: easy
REFERENCES: 2.2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: prefixes | SI unit
OTHER: general chemistry
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146. The fundamental unit of mass in the metric system is the _____.
a. kilogram
b. gram
c. milligram
d. meter
e. kilometer

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 2.2
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Units
KEYWORDS: base unit | si unit
OTHER: general chemistry
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147. Which of the following is not a fundamental SI unit?
a. Kilogram
b. Gram
c. Meter
d. Second
e. Kelvin

ANSWER: b
POINTS: 1

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DIFFICULTY: Moderate
REFERENCES: 2.2
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Units
KEYWORDS: base unit | si unit
OTHER: general chemistry
DATE CREATED: 12/23/2013 2:41 PM
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148. Which of the following is not a fundamental SI unit?

a. Kilogram
b. Liter
c. Meter
d. Second
e. Kelvin

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: 2.2
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
TOPICS: Units
KEYWORDS: base unit | si unit
OTHER: general chemistry
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149. Which of the following metric relationships is incorrect?

a. 1 microliter = 10^{-6} liters
b. 1 gram = 10^{3} kilograms
c. 10^{3} milliliters = 1 liter
d. 1 gram = 10^{2} centigrams
e. 10 decimeters = 1 meter

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 2.2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: general concepts
measurement

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KEYWORDS: prefixes | SI unit
OTHER: general chemistry
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150. Order the four metric prefixes from smallest to largest.

a. nano- < milli- < centi- < deka-
b. milli- < nano- < centi- < deka-
c. deka- < centi- < nano- < milli-
d. deka- < centi- < milli- < nano-
e. centi- < nano- < deka- < milli-

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 2.2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: general concepts
measurement
KEYWORDS: prefixes | SI unit
OTHER: general chemistry
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151. Which of the following conversion factors is incorrect?

a. 1 microliter = 1000 nL
b. 1 cg = 100 g
c. 1 L = 1000 mL
d. 1000 m = 1 km
e. 1 kg = 10000 dg

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: 1.7
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: dimensional analysis
OTHER: general chemistry
DATE CREATED: 12/23/2013 2:41 PM
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152. Which of the following conversion factors is incorrect?

a. 1 in/2.54 cm
b. 1 cm/2.54 in
c. 1 kg/2.205 lb
d. 1 m/1.094 yd

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e. 1 ft/12 in

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 1.7
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis
OTHER: general chemistry
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153. Which of the following conversion factors is incorrect?

a. 1 in = 2.54 cm b. 1 lb = 2.205 kg
c. 1 kg = 2.205 lb d. 1 m = 1.094 yd
e. 1 ft = 12 in

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: 1.7
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Problem Solving and Dimensional Analysis
KEYWORDS: dimensional analysis
OTHER: general chemistry
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154. Which of the following conversion factors is incorrect?

a. 1 in/2.54 cm b. 1 yd/1.094 m
c. 1 kg/2.205 lb d. 1 m/1.094 yd
e. 1 ft/12 in

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 1.7
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: general concepts
measurement
KEYWORDS: dimensional analysis

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OTHER: general chemistry
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155. Decimeter is _____.

a. equal to a meter
b. one-tenth of a meter
c. one-hundredth of a meter
d. one-thousandth of a meter
e. twice a meter

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Units
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156. Carry out the below mathematical operations, and give the result to the correct number of significant figures.

a. 2.2×10^3
b. 2.2 x 104
c. 2.3×10^3
d. 2.3 x 104
e. 2.0×10^3

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Significant Figures
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157. Express 0.00003031 in exponential notation.

a. 3.031×10^{-5}
b. 3.0×10^{-5}
c. 3.031×10^{5}
d. 3.031×10^{-4}
e. 3.031

ANSWER: a

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POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Scientific Notation
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
DATE CREATED: 1/8/2018 12:46 AM
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158. Express 0.005858 in scientific notation.

a. 5.86×10^{3}
b. 5.858×10^{3}
c. 5.86×10^{-3}
d. 5.858×10^{-3}
e. 5858×10^{-6}

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: Scientific Notation
KEYWORDS: scientific notation | significant figures
OTHER: general chemistry
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