

Metric System:

- The basic unit of length in the metric system is the
(a) kilometer (b) mile (c) foot (d) meter (e) none of these
- The basic unit of mass in the metric system is the _
(a) gram (b) kilogram (c) ounce (d) milligram (e) none of these
- The basic unit of volume in the metric system is the
(a) quart (b) milliliter (c) gallon (d) pint (e) none of these
- We represent the following unit of volume as "ml"
(a) milligram (b) millimeter (c) milliliter
- A kilometer is (a) 100 meters (b) 1000 meters (c) 0.62 mi
(d) 1.61 miles (e) more than one answer is right
- 10^{-6} of a unit is abbreviated as this (a) milli (b) mega (c) micro
- 0.1 dg is how many grams
(a) 0.01g (b) 1.0g (c) 10g (d) 100g (e) none of these
- 325 dl = (a) 3.25L (b) 0.325L (c) 32.5L
- 0.015kg = (a) 1.5dg (b) 15dg (c) 150dg
- 8.25uL = (a) 0.825cL (b) 0.000825cL (c) 0.0825cL
- 29mm = (a) 290m (b) .029m (c) 2.90m (d) 0.29m (e) none of these
- If 1 ounce = 28.35 grams, then how many grams are there in 0.5 ounce?
(a) 2.835g (b) 283.5g (c) about 14.17g
(d) 17.14g (e) 0.2835g
- If 1 inch = 2.54cm, how many centimeters are there in 11 inches?
(a) 25.4cm (b) 27.94 (c) 254cm
- How many liters are there in 100cc? (a) 1L (b) 10L (c) 0.1L
- 1 liter is equal to 1.06qt. How many quarts are there in 20 liters?
(a) 21.2qt. (b) 10.6qt (c) 18.9qt.
- 2.20lb. is equal to 1 kilogram. How many kilograms are there in 160lb.?
(a) 220kg (b) 352lb. (c) 72.72kg
- Which is the larger unit? (a) gram (b) ounce
- Which is the larger unit? (a) quart (b) liter
- Which is the larger unit? (a) yard (b) meter
- If 40.00ml of alcohol weighs 42.42g, what is the density of the alcohol?
(a) 0.94g/ml (b) 1.06g/ml (c) 1.68g/ml
- If a wooden block has a volume of 1000cc and it weighs 100 grams. What is its density?
(a) 10g/cc (b) 0.1g/cc (c) 100g/cc (d) 1000g/cc (e) none of these
- The density of cement is 3.0g/ml. How many kilograms of cement would it take to fill a volume of 1000cc? (a) 30kg (b) 3000kg (c) 3kg
- The density of gold is 19.3g/ml. How many grams of gold would it take to make a bar which is 10cm X 10cm X 20cm? (a) 2000g (b) 38,600g (c) 19,300g
- The density of aluminum is 2.7g/ml. What is the volume (in mL) of 54.0 grams of Al?
(a) 20ml (b) 2ml (c) 27ml (d) 54ml (e) none of these

26. The density of water is 1.0g/ml. How many liters of water would it take to fill a pool that holds 1,000,000kg of water? (a) 1,000,000L (b) 100,000L (c) 10,000,000L

Temperature Conversions:

27. 22° C is equal to (a) 253° K (b) 295° K (c) 275°K
28. 150° C is equal to (a) 303° K (b) 383° K (c) 423° K
29. 243° K is equal to (a) -30°C (b) 30°C (c) 3°C
30. 493° K is equal to (a) 203°C (b) 220°C (c) 293°C

Periodic Table:

31. Ti, Fe and Ga are members of a (a) period (b) family
32. Sc, Y and Ac are members of a (a) period (b) family
33. S, Se and Po are members of a (a) period (b) family
34. Re, Pt and At are members of a (a) period (b) family
35. We “commonly” call group VIIA (on the periodic chart) the (a) transitions (b) noble gasses (c) halogens (d) alkali earths (e) none of these
36. The “B” group elements are also called the (a) transition metals (b) noble medals (c) alkaline earth metals
37. The group IA metals are commonly referred to as the (a) transition metals (b) alkaline earth medals (c) inert metals (d) halogen metals (e) none of these

True or False:

38. Arsenic is a metal.
39. Hydrogen is a metal.
40. Barium is a nonmetal.
41. Silicon is a nonmetal.
42. The atomic number of nitrogen is (a) 14 (b) 7 (c) 12
43. The atomic mass of potassium is approximately (a) 19 amu (b) 39 amu (c) 59 amu
44. There are seven non-metals that are diatomic. I will list five. Choose the two that are missing: H₂, O₂, Cl₂, I₂, F₂ The two that are missing are (a) Br₂ & K₂ (b) N₂ & Br₂ (c) N₂ & He₂ (d) Br₂ & H₂ (e) I₂ & N₂
45. Pick out the element that is not diatomic: (a) O₂ (b) F₂ (c) B₂

Symbols/Elements, vice versa:

46. Match the following elements to their correct symbols:

- | | |
|---------------|-------|
| 1. Phosphorus | a. Fe |
| 2. Potassium | b. Pb |
| 3. Mercury | c. K |
| 4. Iron | d. P |
| 5. Lead | e. Hg |

47. Match the following elements to their correct symbols:

- | | |
|-------------|-------|
| 1. Fluorine | a. Sb |
| 2. Iron | b. Cu |
| 3. Copper | c. F |
| 4. Cobalt | d. Fe |
| 5. Antimony | e. Co |

48. Match the following elements to their correct symbols:

- | | |
|-------|--------------|
| 1. Sr | a. Magnesium |
| 2. Si | b. Strontium |
| 3. Ni | c. Silver |
| 4. Ag | d. Nickel |
| 5. Mg | e. Silicon |

49. Match the following symbols to their elements:

- | | |
|-------|--------------|
| 1. Al | a. Strontium |
| 2. Au | b. Sodium |
| 3. Sn | c. Aluminum |
| 4. Sr | d. Tin |
| 5. Na | e. Gold |

Formula and compound:

Use the following formula: $(\text{NH}_4)_3\text{PO}_4$ to answer questions 50-52.

50. How many different elements are present in the compound?

- (a) 3 (b) 2 (c) 4

51. The total number of atoms present in this compound is:

- (a) 4 (b) 18 (c) 7 (d) 20

52. The molecular mass of this compound is

- (a) 149 (b) 129 (c) 229

Use the following formula: $\text{Na}_2\text{B}_4\text{O}_7$ to answer questions 53-55.

53. How many different elements are present in the compound:

- (a) 2 (b) 3 (c) 4

54. The total number of atoms present in this compound is

- (a) 13 (b) 11 (c) 3

55. The molecular mass of this compound is

- (a) 201.2 (b) 221.2 (c) 102.2

Element, compound, homo./heter. mixture:

56. Elements, molecules, and compounds are all examples of substances that are

- (a) heterogeneous (b) homogeneous

57. An element has more than one kind of atom (in it):

- (a) true (b) false

58. A molecule has more than one atom in it. Sometimes it may have many, and they may also be different kinds of atoms.

- (a) true (b) false

59. Match the following:

- | | |
|--------------------------|------------------------|
| 1. Elements | a. Li |
| 2. Compound | b. Muddy water |
| 3. Heterogeneous mixture | c. Oxygen |
| 4. Homogeneous mixture | d. NaCl |
| 5. Atom | e. Uniform composition |

60. Match the following:

- | | |
|-------------------|------------------|
| 1. Rocks | a. Molecule |
| 2. Gold | b. Homogeneous |
| 3. Glass | c. Element |
| 4. O ₂ | d. Compound |
| 5. Salt | e. Heterogeneous |

61. Which of the following is a physical property?

- (a) reacts with air (b) luster (c) burns easily

62. Which of the following is not a chemical property?

- (a) color (b) reacts with acid (c) tarnishes

63. Which of the following is not evidence of a chemical change?

- (a) precipitate (b) gas bubbles (c) color change
(d) dissolves (e) burns

64. Which of the following is an example of a physical change?

- (a) match burning (b) hair is "permed" (c) ball is thrown

65. In a chemical change, matter is neither created nor destroyed, therefore, mass is conserved. This is a statement called

- (a) Law of definite composition (b) Law of conservation of energy
(c) Law of conservation of matter (mass) (d) Scientific Law
(e) Scientific theory

The following statements describe either a: a) gas b) liquid (c) solid
Label each statement a, b, or c depending on which one is described.

66. Particles are constantly moving, with high velocities.

67. Particles are held closely by weak attractive forces.

68. Definite volume/no definite shape.

69. No definite shape or volume.

70. Motion (of particles) limited to vibration about a fixed point.

71. Not compressible.

72. Held together by "strong" attractive forces.

73. Low density.

Based on what you know about the gas laws, tell how the following will be affected:

74. Pressure constant, volume constant, "n" constant, the temperature will

- (a) go up (b) go down (c) stay the same

75. Pressure constant, "n" constant, volume goes down. Temperature will

- (a) go up (b) go down (c) stay the same

76. "n" is constant, temperature is constant, volume goes down, the pressure will

- (a) go up (b) go down (c) stay the same

77. Pressure is constant, volume is constant, "n" goes up, temperature will

- (a) go up (b) go down (c) stay the same

78. Pressure increases, "n" constant, temperature constant, volume will

- (a) go up (b) go down (c) stay the same

Label parts of a change of state diagram. Vocabulary:

79. The amount of heat energy required to raise the temperature of 1g of water by 1°C is called (a) specific heat (b) calorie (c) heat of fusion

80. The “thickness” of a liquid, ie. its tendency to flow is called
(a) potential energy (b) melting pot (c) viscosity
81. The process of a solid going directly to the gas phase without becoming a liquid is called
(a) boiling (b) evaporation (c) surface tension
(d) sublimation (e) viscosity
82. The density of a substance compared to the density of water is its
(a) surface tension (b) specific heat (c) specific gravity
(d) density (e) vapor pressure
83. Energy of motion or produced by motion is called
(a) chemical energy (b) kinetic energy (c) potential energy
84. A measure of the tendency of a liquid to vaporize is called
(a) heat of vaporization (b) vapor pressure (c) viscosity
85. Symbol is to element as formula is to
(a) compound (b) mixture (c) atom
(d) substance (e) reagent
86. The energy required to change 1g of water from ice to (liquid) water is
(a) melting point (b) heat of fusion (c) heat vaporization
(d) freezing point (e) specific heat
87. A chemical used in an experiment is called
(a) matter (b) precipitate (c) filtrate
(d) reagent (e) meniscus