

Name _____

Date _____

7th Donald Basic Chemisrty

1.

Which of the following properties is characteristic of a metal?

- A. Being transparent
- B. Poor conductor
- C. Floating in water
- D. Silver-gray color

2.

The formula for glucose is $C_6H_{12}O_6$. How many elements does glucose contain?

- A. 1
- B. 3
- C. 24
- D. 432

3.

Which of the following is a chemical property associated with wood?

- A. Ability to burn
- B. Snapping when bent
- C. Floating on water
- D. Having a rough surface

4.

Which of the following is a chemical property of iron?

- A. Melting when heated
- B. Sticking to a magnet
- C. Rusting over time
- D. Conducting electricity

5.

Which of the following is the BEST evidence that rusting is a chemical property rather than a physical property of iron?

- A. Rust forms slowly.
- B. Rust can form on any iron.
- C. Rust cannot turn back into iron.
- D. Rust does not look the same as iron.

6.

Students collect rock samples on a field trip and test them for different properties. Which of the following is a chemical property of rocks?

- A. Having a white color
- B. Reacting when tested with a drop of acid
- C. Having a rough surface
- D. Being easy to scratch with a piece of metal

7.

Students are given a sample of an unknown material. They want to perform tests to determine its identity. Which test is MOST likely to change the sample into another material?

- A. Dissolving its water
- B. Heating it until it melts
- C. Grinding it into a powder
- D. Burning it in a flame

8.

When an electric current passes through the filament inside a light bulb, the filament shines with bright white light and becomes very hot. When the current stops, the filament dims and cools. Which of the following is the BEST evidence that these changes are physical properties of the filament?

- A. The changes produce light.
- B. The changes are easily reversed.
- C. The changes are produced by electricity.
- D. The changes result in the release of heat.

9.

Students were given four unknown substances and asked to observe their characteristics. Their observations are shown in the table below.

Observation of Unknown Substances

Unknown	Conducts Electricity	Appearance	Observation
1	No	Black and gritty	Snaps easily into small pieces
2	Yes	Shiny	Bends easily
3	No	Blue	Bends and snaps back to original shape
4	Yes	Clear	Shatters easily

Which of the unknown substances is MOST likely a metal?

- A. 1
- B. 2
- C. 3
- D. 4

10.

Acetic acid is a compound found in vinegar. The chemical formula for acetic acid is CH_3COOH . How many different elements are in acetic acid?

- A. 3
- B. 5
- C. 6
- D. 8

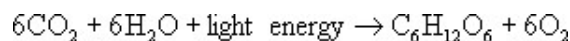
11.

Which of the following lists all the elements that are present in a molecule of potassium carbonate, K_2CO_3 ?

- A. Carbon and oxygen
- B. Phosphate and calcium
- C. Potassium, carbon, and oxygen
- D. Phosphorus, oxygen, and calcium

12.

This equation describes the chemical reaction that occurs during photosynthesis.



How many elements does carbon dioxide contain?

- A. 2
- B. 6
- C. 12
- D. 24

13.

Which of the following contains the greatest number of elements?

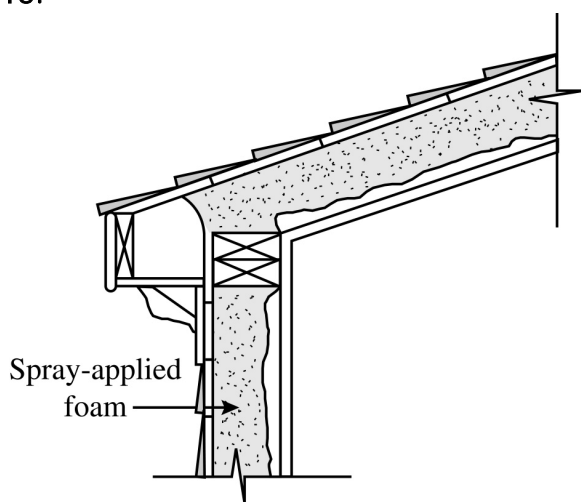
- A. S_8
- B. CH_4
- C. AlCl_3
- D. HNO_2

14.

One property of copper and other metals is that they are electrically conductive. Which of the following everyday products makes use of this property in order to function?

- A. Lamps
- B. Water pipes
- C. Pennies
- D. Kitchen pots

15.



Workers are building a new house. Which of the following BEST explains why foam is put inside the exterior walls?

- A. Foam is light and strong.
- B. Foam is a good insulator.
- C. Foam has a rigid structure.
- D. Foam has a waterproof surface.

16.

Sodium polyacrylate is a polymer that can absorb several hundred times its weight in water. Which of the following products is MOST LIKELY to contain this polymer?

- A. Car tires
- B. Sunglasses
- C. Disposable diapers
- D. Thermometers

17.

The doors and walls of energy-efficient refrigerators are lined with a thick layer of insulation. These refrigerators are energy efficient because the insulation has —

- A. a low freezing point
- B. low electrical resistance
- C. a low stress threshold
- D. low thermal conductivity

18.

A student measured how long it took for two chemicals to react completely at 20 °C. Then, the student repeated the experiment at 30 °C and 40 °C. Each time, the student used the same amount of each chemical.

Chemical Reaction Results

Trial	Temperature (°C)	Time (seconds)
1	20	48
2	30	24
3	40	12

The student plans to repeat the experiment, using the same amount of each chemical, at 60 °C. Based on the information in the table above, how long will it take the chemicals to react completely?

- A. 3 seconds
- B. 6 seconds
- C. 12 seconds
- D. 32 seconds

19.

Mass and Volume Measurements

Sample	Mass (g)	Volume (mL)
1	24	6.0
2	14	3.5
3	28	7.0
4		4.0

A student recorded the mass and volume of different samples of the same metal. Her lab partner noticed that one of the boxes in the table was empty. Which of the following numbers MOST likely belongs in the empty box?

- A. 16 g
- B. 18 g
- C. 20 g
- D. 22 g

20.

Two properties that are used to distinguish metals from the other elements are that they are good conductors of electricity and —

- A. have a dull appearance
- B. have a high malleability
- C. are poor conductors of heat
- D. are solids at room temperature

21.

Substances and their Melting Points

Substance	Melting Point (Celsius)
Silver	961
Gold	1064
Lead	328
Iron	1535

Which would be liquids at 1,000 degrees Celsius?

- A. iron & gold
- B. lead & iron
- C. silver & lead
- D. silver & gold

22.

Boiling Point and Densities of Some Substances

Substance	Boiling Point (Celsius)	Density (g/cm ³)
Silver	2212	10.5
Gold	2966	19.3
Lead	1740	11.3
Iron	3000	7.9

Using the chart, what is the relationship between density and the boiling point of these substances?

- A. As the boiling point goes up, the density goes up
- B. As the boiling point goes down, the density goes down
- C. As the boiling point goes up, the density goes down
- D. There is no relationship between boiling point and density

23.

Volumes of Some Rocks

Rock	Volume (milliliters)
1	10
2	20
3	30
4	40

If each rock has a mass of 10 grams, which rock has the greatest density?

- A. rock 1
- B. rock 2
- C. rock 3
- D. rock 4

24.

Densities of Some Substances

Substance	Density (g/cm ³)
Gasoline	0.7
Mercury	13.5
Water	1.0

In a graduated cylinder, in what order would these liquids float from top to bottom?

- A. gasoline - mercury - water
- B. gasoline - water - mercury
- C. water - mercury - gasoline
- D. water - gasoline - mercury

25.

Two rectangular pieces of metal have the same volume. What must be different about them in order for the densities to be different?

- A. height
- B. length
- C. mass
- D. width

26.

If two objects have the same mass, how can they have different densities?

- A. different height
- B. different length
- C. different volume
- D. different weight

27.

Solubility of a Substance

Temperature (Celsius)	Grams per 100 grams of Water
25	36.2
100	39.2

Solubility is dependent upon temperature. At what temperature would you expect 37.2 grams of this substance to be soluble?

- A. 10 degrees Celsius
- B. 40 degrees Celsius
- C. 80 degrees Celsius
- D. 90 degrees Celsius

28.

An example of a charecteristic property is

- A. size
- B. chemical activity
- C. amount
- D. shape

29.

The "best mixed" mixtures are called

- A. elements
- B. compounds
- C. solutions
- D. chemicals

30.

Unlike physical changes, chemical changes always

- A. involve melting or boiling
- B. form a new substance or substances
- C. change the physical state of a substance
- D. take a relatively long time

31.

Which of the following is NOT an example of a physical change?

- A. ice melting
- B. fog forming on a mirror
- C. wood burning
- D. clouds forming

32.

Which of the following is an example of a pure substance?

- A. Air
- B. Soda Pop
- C. Soup
- D. Table salt

33.

Anything that has mass and takes up space is called

- A. a compound
- B. a solution
- C. matter
- D. real

34.

Which of the following is formed when particles of matter do not form a regular pattern?

- A. crystalline solid
- B. amorphous solid
- C. liquid
- D. gas

35.

The process of a solid becoming a gas without first becoming a liquid, as seen in dry ice, is called

- A. sublimation
- B. evaporation
- C. disposition
- D. neutralization

36.

Put simply, _____ states that energy is neither created nor destroyed, only added or subtracted.

- A. Law of the Conservation of Matter
- B. Law of the Balance of Matter
- C. Law of the Conservation of Energy
- D. Law of the Balance of Energy

37.

Melting is to Freezing as Vaporization is to _____.

- A. boiling
- B. evaporation
- C. condensation
- D. crystalization

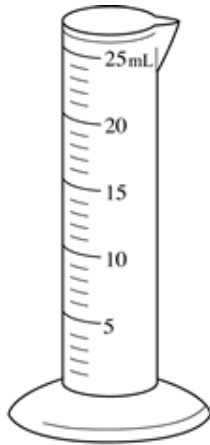
38.

Which of the following lists is made up on ONLY physical properties?

- A. Odor, size, flammability
- B. Color, shape, density
- C. Toxicity, size, odor
- D. Reactivity, color, shape

39.

A student uses the tool shown below to make measurements during an experiment.







What was the student MOST likely measuring with this tool?

- A. Density
- B. Pressure
- C. Temperature
- D. Volume

40.

A student needs to measure the mass of an apple. Which of the following tools should the student use?

- A. 
- B. 
- C. 
- D. 

41.

Where are electrons found in an atom?

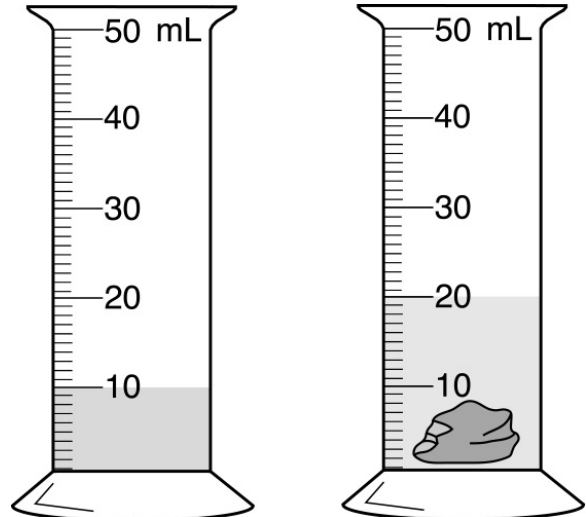
- A. Inside protons
- B. Deep within the nucleus
- C. Orbiting the nucleus
- D. Covering the surface of protons

42.

Anything that takes up space and has mass is an example of —

- A. gravity
- B. matter
- C. pressure
- D. radiation

43.

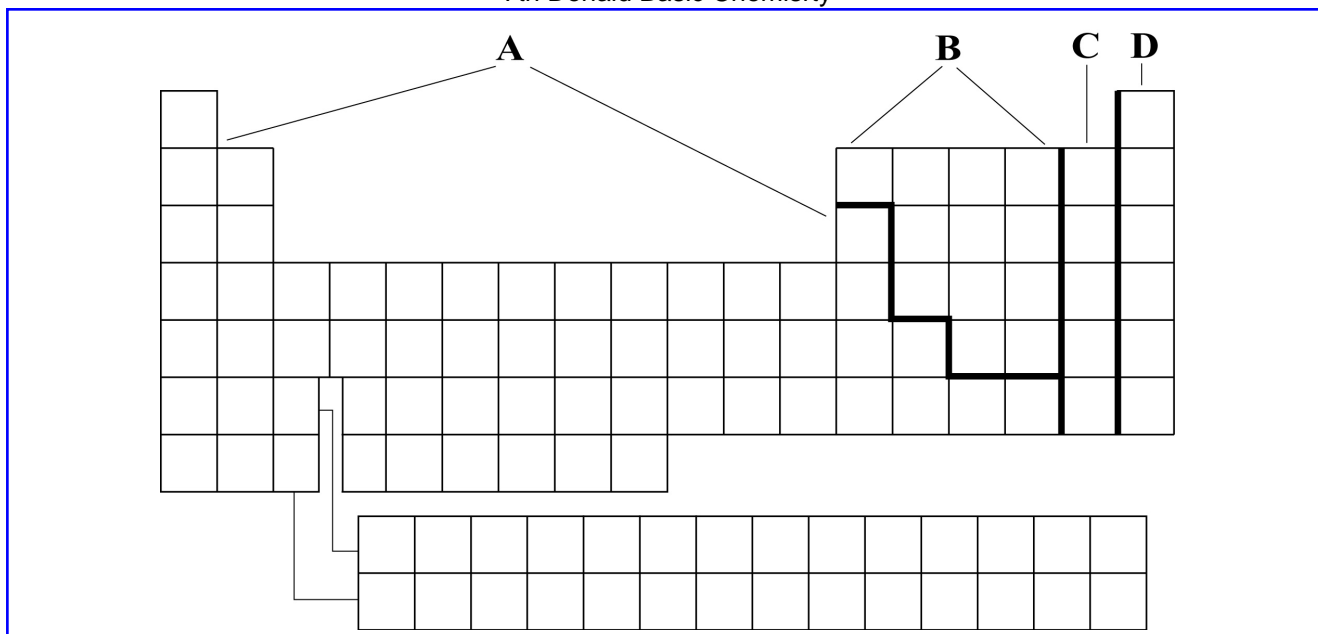


**Beginning
Volume**

**Final
Volume**

Use the diagrams above to determine the volume of the irregular solid in the graduated cylinder.

- A. 5 mL
- B. 10 mL
- C. 15 mL
- D. 50 mL



44.

Elements that are shiny solids, can be stretched and shaped, and are good conductors of heat and electricity, are found in which part of the periodic table?

- A. A
- B. B
- C. C
- D. D

45.

Scientists believe that interactions between atoms depend mostly on the arrangement of the outermost electrons in each atom. This theory is MOST supported by the observation of similar reactions among elements —

- A. with similar atomic mass
- B. with similar atomic number
- C. in a row of the periodic table
- D. in a column of the periodic table

46.

Which of these parts of an atom is the largest?

- A. Electron
- B. Neutron
- C. Nucleus
- D. Proton

47.

The development of the periodic table has been most helpful to which field of science?

- A. Astronomy
- B. Biology
- C. Chemistry
- D. Geology

48.

Some Alloys and their Composition

Alloy	Ingredients
Brass	Copper, Zinc
Bronze	Copper, Tin
Stainless Steel	Chromium, Iron, Nickel
Sterling Silver	Copper, Silver

Which alloy does NOT contain copper?

- A. brass
- B. bronze
- C. stainless steel
- D. sterling silver

49.

If the formula for water is H_2O , what chemicals make up water?

- A. hydrogen and oxygen
- B. oxygen and helium
- C. hydrogen and carbon
- D. helium and carbon

50.

A cube of a certain metal measures 2 centimeters on each side and its mass is found to be 80 grams. What is the density of this cube?

- A. 10 g/cm^3
- B. 20 g/cm^3
- C. 40 g/cm^3
- D. 80 g/cm^3

Answer Key

#	Name	Answer	Align.	Stimulus
1	3126905	D	Grade 7 > 8 > 8c	-
2	3127036	B	Grade 7 > 8 > 8d	-
3	3128992	A	Grade 7 > 8 > 8b	-
4	3128994	C	Grade 7 > 8 > 8b	-
5	3128995	C	Grade 7 > 8 > 8b	-
6	3128996	B	Grade 7 > 8 > 8b	-
7	3128997	D	Grade 7 > 8 > 8b	-
8	3128998	B	Grade 7 > 8 > 8b	-
9	3129515	B	Grade 7 > 8 > 8c	-
10	3135621	A	Grade 7 > 8 > 8d	-
11	3135622	C	Grade 7 > 8 > 8d	-
12	3135623	A	Grade 7 > 8 > 8d	-
13	3135624	D	Grade 7 > 8 > 8d	-
14	3175393	A	Grade 7 > 8 > 8c	-
15	3175395	B	Grade 7 > 8 > 8b	-

#	Name	Answer	Align.	Stimulus
16	3175396	C	Grade 7 > 8 > 8b	-
17	3175397	D	Grade 7 > 8 > 8b	-
18	3182409	A	Grade 7 > 8 > 8a	-
19	3182411	A	Grade 7 > 8 > 8c	-
20	3240927	B	Grade 7 > 8 > 8c	-
21	SCI070801	C	Grade 7 > 8 > 8a	-
22	SCI070802	D	Grade 7 > 8 > 8a	-
23	SCI070810	A	Grade 7 > 8 > 8e	-
24	SCI070809	B	Grade 7 > 8 > 8e	-
25	SCI070808	C	Grade 7 > 8 > 8e	-
26	SCI070807	C	Grade 7 > 8 > 8e	-
27	SCI070803	B	Grade 7 > 8 > 8a	-
28	Characteristic Properties	A	Grade 7 > 8 > 8a	-
29	Mixtures	C	Grade 7 > 8 > 8a	-
30	Physcial vs. Chemical	B	Grade 7 > 8 > 8a	-
31	Physical Change	C	Grade 7 > 8 > 8a	-

#	Name	Answer	Align.	Stimulus
32	Pure Substances	C	Grade 7 > 8 > 8a	-
33	Matter	C	Grade 7 > 8 > 8a	-
34	States of Matter	B	Grade 7 > 8 > 8a	-
35	sublimation	A	Grade 7 > 8 > 8b	-
36	Conservation of Energy	A	Grade 7 > 8 > 8b	-
37	Condensation	C	Grade 7 > 8 > 8b	-
38	3123544	B	Grade 6 > 8 > 8a	-
39	3124337	D	Grade 6 > 8 > 8d	-
40	3124338	C	Grade 6 > 8 > 8d	-
41	3128951	C	Grade 8 > 8 > 8d	-
42	3129597	B	Grade 6 > 8 > 8a	-
43	3135295	B	Grade 6 > 8 > 8d	-
44	3135576	A	Grade 8 > 8 > 8b	41147
45	3138179	D	Grade 8 > 8 > 8d	-
46	3154967	C	Grade 8 > 8 > 8d	-
47	3175372	C	Grade 8 > 8 > 8b	-

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#	Name	Answer	Align.	Stimulus
48	SCI060801	C	Grade 6 > 8 > 8c	-
49	SCI060802	A	Grade 6 > 8 > 8c	-
50	SCI080801	A	Grade 8 > 8 > 8e	-

Checklist List

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

11)

12)

13)

14)

15)

16)

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43)

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47)