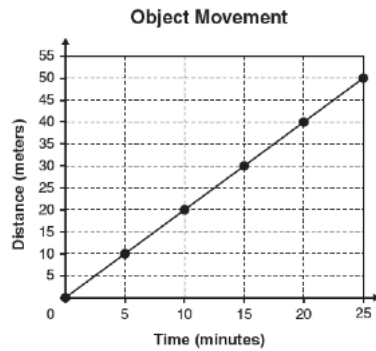


Question; Ch. 9; Motion

- 1 The graph below shows the movement of an object at several points in time.



What is the average speed of the object?

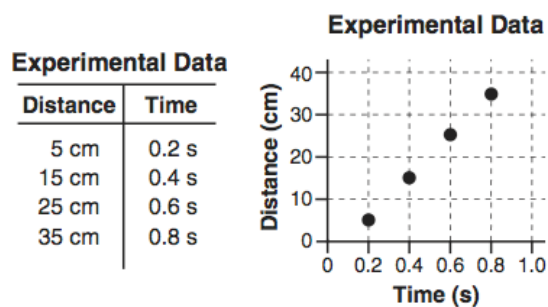
Answer; Ch. 9; Motion

- A $\frac{0.5 \text{ meters}}{\text{minute}}$
- B $\frac{2 \text{ meters}}{\text{minute}}$
- C $\frac{25 \text{ meters}}{\text{minute}}$
- D $\frac{50 \text{ meters}}{\text{minute}}$

P

Question; Ch. 9; Motion

- 2 Data from an experiment are presented below.



The slope of the graph represents what characteristic of an object?

Answer; Ch. 9; Motion

- A** displacement
- B** force
- C** speed
- D** inertia

M

Question; Ch. 10 Force

- 3** A spring scale is pulled downward and readings are recorded.

Data Table

Distance Pulled	Spring Scale Reading
1.0 cm	4 N
1.5 cm	6 N
2.0 cm	8 N
2.5 cm	10 N

If the spring is pulled 3.5 cm, the spring scale should read

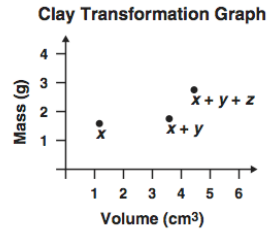
Answer Ch. 10 Force

- A** 12 N.
- B** 13 N.
- C** 14 N.
- D** 15 N.

S

Question; Investigation & Experimentation

- 4 A student records the mass and volume of a lump of clay, x . Next, a second lump of clay, y , is added to lump x , and the combined $(x + y)$ mass and volume are recorded. Finally, a third lump of clay, z , is added to the combined $(x + y)$ mixture, and the final $(x + y + z)$ mass and volume are recorded, as shown below.



What is the *most* logical conclusion about the clay used in this investigation?

Answer Investigation & Experimentation

- A Lump z had the greatest mass.
- B Lump z had the lowest density.
- C Lump y had the lowest density.
- D Lump y had the greatest mass.

Question; Ch. 11 Floating, Sinking, Density, Buoyancy

- 5** Red-clay bricks have a density of approximately $2000 \frac{\text{kg}}{\text{m}^3}$. Air has a density of $1 \frac{\text{kg}}{\text{m}^3}$. Which of the following has the lowest mass?

Answer; Ch. 11 Floating, Sinking, Density, Buoyancy

- A** 2 m^3 of bricks
- B** 4 m^3 of bricks
- C** 6000 m^3 of air
- D** $10,000 \text{ m}^3$ of air

U

Question; Ch. 9 Motion & Energy

- 6** An athlete can run 9 kilometers in 1 hour. If the athlete runs at that same average speed for 30 minutes, how far will the athlete travel?

Answer; Ch. 9 Motion & Energy

- A** 18 kilometers
- B** 9 kilometers
- C** 4.5 kilometers
- D** 3.3 kilometers

H

Question; Ch. 9 Motion & Energy

7

How much time is required for a bicycle to travel a distance of 100 m at an average speed of $2 \frac{\text{m}}{\text{s}}$?

Answer Ch. 9 Motion & Energy

- A** 0.02 s
- B** 50 s
- C** 100 s
- D** 200 s

W

Question; Ch. 9 Motion & Energy

8 Which of the following represents the velocity of a moving object?

Answer; Ch. 9 Motion & Energy

A 40

B 40 m north

C $40 \frac{\text{m}}{\text{s}}$

D $40 \frac{\text{m}}{\text{s}}$ north

F

Question; Ch. 9 Motion & Energy

9 Which characteristic of motion could change without changing the velocity of an object?

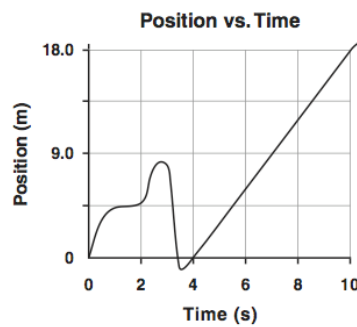
Answer; Ch. 9 Motion & Energy

- A the speed
- B the position
- C the direction
- D the acceleration

Y

Question; Ch. 9 Motion & Energy

- 10 The graph below shows how the position of an object changes over time.



What is the speed of the object during the time interval from 4 seconds to 10 seconds?

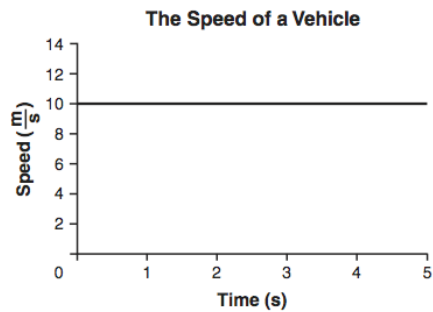
Answer Ch. 9 Motion & Energy

- A $2 \frac{\text{m}}{\text{s}}$
- B $3 \frac{\text{m}}{\text{s}}$
- C $8 \frac{\text{m}}{\text{s}}$
- D $16 \frac{\text{m}}{\text{s}}$

D

Question; Ch. 9 Motion & Energy

- 11** The graph below shows the speed of a vehicle over time.



How far did the vehicle travel during the first two seconds?

Answer; Ch. 9 Motion & Energy

A 0.2 m

B 5 m

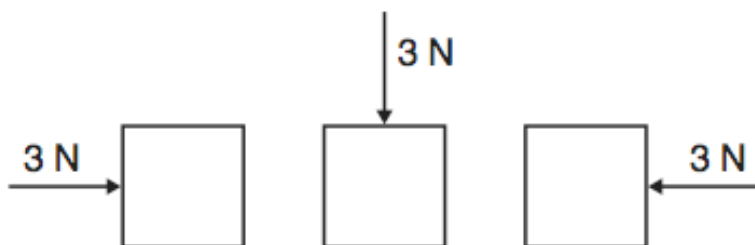
C 10 m

D 20 m

A

Question; Ch. 10 Forces

- 12** A force is acting on each of the objects below.



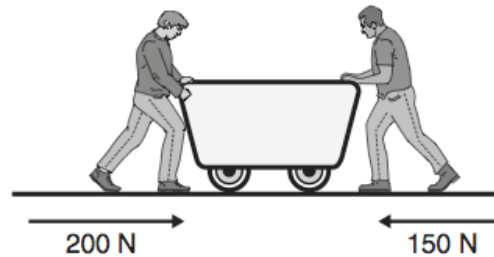
What can be concluded about these forces?

Answer; Ch. 10 Forces Q

- A** They are the same because they point toward the objects.
- B** They are the same because they have the same magnitude.
- C** They are different because they have different magnitudes.
- D** They are different because they have different directions.

Question; Ch. 10 Forces

- 13** Two students are pushing a cart, as shown below.



The cart will move as if it were acted on by a single force with a magnitude of

Answer Ch. 10 Forces

- A** 50 N.
- B** 150 N.
- C** 200 N.
- D** 350 N.

N

Question; Ch. 10 Forces

- 14** A ball is dropped from the top of a tall building. As the ball falls, the upward force of air resistance becomes equal to the downward pull of gravity. When these two forces become equal in magnitude, the ball will

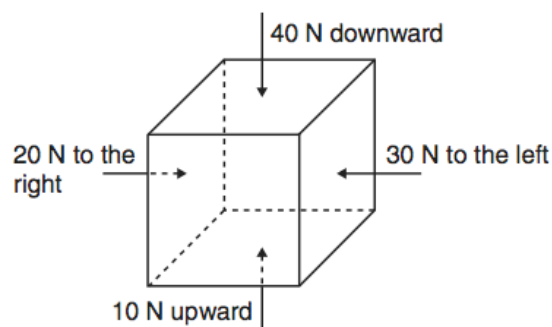
Answer; Ch. 10 Forces

- A** flatten due to the forces.
- B** fall at a constant speed.
- C** continue to speed up.
- D** slow to a stop.

K

Question Ch. 10 Forces

- 15** Four forces are acting on a box, as shown below.



This box will increase in speed

Answer; Ch. 10 Forces

- A** downward and to the left.
- B** downward and to the right.
- C** upward and to the left.
- D** upward and to the right.

G

Question; Ch. 10 Forces

- 16** A force of 5 N is required to increase the speed of a box from a rate of $1.0 \frac{\text{m}}{\text{s}}$ to $3.0 \frac{\text{m}}{\text{s}}$ within 5 s along a level surface. What change would *most* likely require additional force to produce the same results?

Answer; Ch. 10 Forces

- A** reduce the mass of the box
- B** increase the mass of the box
- C** make the surfaces of the box smooth
- D** make the surface of the floor smooth

N

Question; Ch. 11; Density, Buoyancy, floating, sinking

- 17** What is the density of a 64-g iron cube that displaces 8 mL of water?

Answer; Ch. 11; Density, Buoyancy, floating, sinking
P

A $512 \frac{\text{g}}{\text{mL}}$

B $32 \frac{\text{g}}{\text{mL}}$

C $8 \frac{\text{g}}{\text{mL}}$

D $4 \frac{\text{g}}{\text{mL}}$

Question; Ch. 11; Density, Buoyancy, floating, sinking

18 A piece of pine wood floats on the surface of a lake because the water exerts

Answer Ch. 11; Density, Buoyancy, floating, sinking
L

- A** an upward force equal to the weight of the wood.
- B** a downward force equal to the weight of the wood.
- C** an upward force equal to the weight of the displacement water.
- D** a downward force equal to the weight of the displacement water.

Question; Ch. 11; Density, Buoyancy, floating, sinking

- 19 The following table shows properties of four different sample materials. One of these materials is cork, a type of wood that floats in water.

Physical Properties

Sample Number	Mass	Volume
1	89 g	10 mL
2	26 g	10 mL
3	24 g	100 mL
4	160 g	100 mL

Given that the density of water is $1 \frac{\text{g}}{\text{mL}}$, which of the samples is *most* likely cork?

Answer; Ch. 11; Density, Buoyancy, floating, sinking

A 1

B 2

C 3

D 4

R

Question Ch. 11; Density, Buoyancy, floating, sinking

- 20 The densities of four different woods are shown below.

Wood Sample Densities

Type of Wood	Density ($\frac{\text{g}}{\text{cm}^3}$)
African Teakwood	0.98
Balsa	0.14
Cedar	0.55
Ironwood	1.23

Which wood will sink when placed in a fluid with a density of $1.14 \frac{\text{g}}{\text{cm}^3}$?

Answer; Ch. 11; Density, Buoyancy, floating, sinking

- A** African teakwood
- B** balsa
- C** cedar
- D** ironwood

J

Question; Ch. 4 Periodic Table & Structure of Atoms

21 Which of the following *best* describes an atom?

Answer Ch. 4 Periodic Table & Structure of Atoms

T

- A** protons and electrons grouped together in a random pattern
- B** protons and electrons grouped together in an alternating pattern
- C** a core of protons and neutrons surrounded by electrons
- D** a core of electrons and neutrons surrounded by protons

Question; Ch. 4 Periodic Table & Structure of Atoms

22 Which of the following is found farthest from the center of an atom?

Answer; Ch. 4 Periodic Table & Structure of Atoms

A nucleus

B proton

C neutron

D electron

H

Question; Ch. 2 The Nature of Matter

23 When magnesium (Mg) metal is burned in the presence of oxygen (O_2), magnesium oxide (MgO) is produced. The properties of magnesium oxide are different than the individual properties of magnesium and oxygen because magnesium oxide is

Answer; Ch. 2 The Nature of Matter

- A** a solution.
- B** a mixture.
- C** a compound.
- D** an element.

V

Question; Ch. 3; Solids, Liquids & Gasses

24 Within a substance, atoms that collide frequently and move independently of one another are *most* likely in a

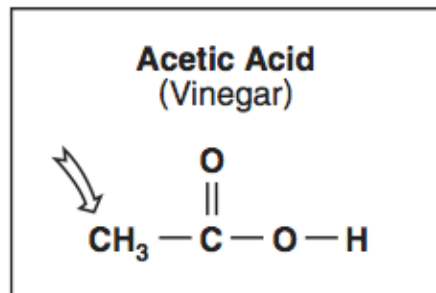
Answer Ch. 3; Solids, Liquids & Gasses

- A** liquid.
- B** solid.
- C** gas.
- D** crystal.

F

Question; Ch. 4 Elements & the Periodic Table

25



What is the name of the indicated atom in the acetic acid molecule shown above?

Answer; Ch. 4 Elements & the Periodic Table

- A** carbon
- B** calcium
- C** chromium
- D** copper

X

Question Ch. 4 Elements & the Periodic Table

26

Iron oxides, such as rust, form when iron metal reacts with oxygen in the air. What are the chemical symbols for the two elements found in iron oxide?

Answer;

- A** I and O
- B** Ir and O
- C** Fe and O
- D** Pb and O

D

Question; Ch. 4 Elements & the Periodic Table

27 What do the elements sulfur (S), nitrogen (N), phosphorus (P), and bromine (Br) have in common?

Answer Ch. 4 Elements & the Periodic Table

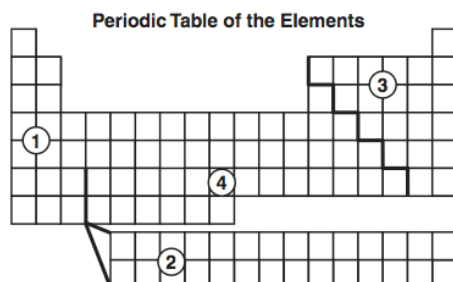
- A** They are noble (inert) gases.
- B** They are nonmetals.
- C** They have the same thermal conductivity.
- D** They have the same number of protons.

CSZ30499

Z

Question; Ch. 4 Elements & the Periodic Table

- 28** A diagram of the periodic table of the elements is shown below.



In which region of the table would nonmetals be found?

Answer; Ch. 4 Elements & the Periodic Table

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

B

Question Ch. 4 Elements & the Periodic Table

- 29** The table below shows the atomic mass of four stable calcium (Ca) isotopes.

Isotope	Atomic Mass
Ca-40	40
Ca-42	42
Ca-43	43
Ca-44	44

What characteristic is different in each isotope?

Answer; Ch. 4 Elements & the Periodic Table O

- A** the position in the periodic table of the elements
- B** the net charge of the nucleus
- C** the mass of the protons in the nucleus
- D** the number of neutrons in the nucleus

Question; Ch. 4 Elements & the Periodic Table

30 Which class of elements *best* conducts electricity?

Answer Ch. 4 Elements & the Periodic Table

- A** metals
- B** nonmetals
- C** semimetals
- D** noble (inert) gases

E

Question Ch. 4 Elements & the Periodic Table

- 31** In a comparison of metals to nonmetals, metals tend to have

Answer Ch. 4 Elements & the Periodic Table O

- A** lower melting points and greater conductivity than nonmetals.
- B** lower conductivity and lower density than nonmetals.
- C** higher density and lower melting points than nonmetals.
- D** greater conductivity and higher melting points than nonmetals.

Question; Ch. 2 The Nature of Matter

- 32** A student divides several cubes into two groups, based on whether or not each cube can float in water. What property is the student using to classify the cubes?

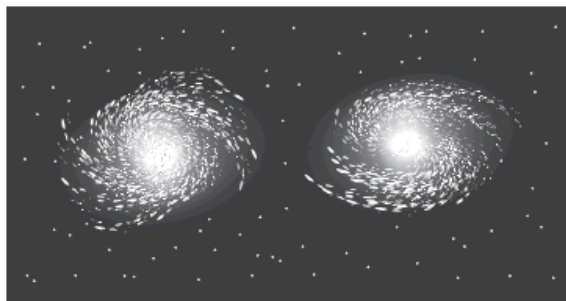
Answer Ch. 2 The Nature of Matter

- A** weight
- B** density
- C** conductivity
- D** mass

M

Question; Ch. 15 Stars, Galaxies, Universe

33



The galaxies pictured above would *best* be classified as

- A** barred galaxies.
- B** spiral galaxies.
- C** irregular galaxies.
- D** symmetrical galaxies.

Q

Question Ch. 15 Stars, Galaxies, Universe

34 A galaxy is *best* described as a cluster of

Answer Ch. 15 Stars, Galaxies, Universe

- A** hundreds of stars.
- B** thousands of stars.
- C** millions of stars.
- D** billions of stars.

L

Question Ch. 15 Stars, Galaxies, Universe

35 To express the distance between the Milky Way galaxy and other galaxies, the *most* appropriate unit of measurement is the

Answer Ch. 15 Stars, Galaxies, Universe

- A** meter.
- B** kilometer.
- C** light-year.
- D** astronomical unit.

R

Question Ch. 15 Stars, Galaxies, Universe

36

Which of the following sets contains only objects that shine as a result of reflected light?

Answer Ch. 15 Stars, Galaxies, Universe

- A** moons, planets, and comets
- B** moons, comets, and stars
- C** planets, stars, and comets
- D** planets, stars, and moons

J

Question; Ch. 14 The Solar System

37 An object composed mainly of ice is orbiting the Sun in an elliptical path. This object is *most* likely

Answer Ch. 14 The Solar System

- A a planet.
- B an asteroid.
- C a meteor.
- D a comet.

T

Question; Ch. 6 Chemical Reactions

38 Copper (Cu) reacts with oxygen (O) to form copper oxide (CuO). The properties of CuO are *most* likely

Answer Ch. 6 Chemical Reactions

- A different from copper or oxygen.
- B similar to both copper and oxygen.
- C similar only to copper.
- D similar only to oxygen.

H

Question Ch. 6 Chemical Reactions

- 39** The following equations represent chemical reactions.

Chemical Reactions

1	$2\text{Na} + 2\text{H}_2\text{O} \rightarrow \text{NaOH} + \text{H}_2$
2	$\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
3	$\text{Mg} + \text{Cl}_2 \rightarrow \text{MgCl}_2$
4	$\text{NaOH} + \text{MgCl}_2 \rightarrow \text{NaCl} + \text{MgOH}$

Which equation shows that the total mass during a chemical reaction stays the same?

Answer Ch. 6 Chemical Reactions

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

U

Question Ch. 6 Chemical Reactions

40 Which of the following forms of energy is released or absorbed in *most* chemical reactions?

Answer Ch. 6 Chemical Reactions

- A** light energy
- B** electrical energy
- C** sound energy
- D** heat energy

I

Question; Ch. 3 Solids, Liquids, & Gases

41 As a sample of water turns to ice,

Answer Ch. 3 Solids, Liquids, & Gases

- A** new molecules are formed.
- B** the mass of the sample is increased.
- C** the arrangement of the molecules changes.
- D** energy is absorbed by the molecules.

W

Question; Ch. 7 Acids, Bases, & Solutions

- 42** The table below shows the pH and reaction to litmus of four body fluids.

Body Fluid	pH	red litmus	blue litmus
Blood	7.4	turns blue	no change
Bile	8.2	turns blue	no change
Saliva	6.8	no change	turns red
Gastric Juice	1.7	no change	turns red

These data indicate that gastric juice is

Answer Ch. 7 Acids, Bases, & Solutions

- A** very acidic.
- B** very basic.
- C** positively charged.
- D** negatively charged.

F

Question; Ch. 8 Carbon Chemistry

43 What characteristic of carbon (C) makes it essential to living organisms?

Answer Ch. 8 Carbon Chemistry

- A** Carbon forms crystal structures under certain conditions.
- B** Carbon can exist as a solid, liquid, or gas.
- C** Carbon bonds in many ways with itself to form chains.
- D** Carbon exists in radioactive forms.

X

Question; Ch. 6 Chemical Reactions

44 Which of the following elements is *best* able to combine with itself and hydrogen (H) to form large molecules?

Answer; Ch. 6 Chemical Reactions

A sodium (Na)

B lithium (Li)

C sulfur (S)

D carbon (C)

D

Question; Ch. 8 Carbon Chemistry

45 Which of the following compounds is *most* likely to be part of living organisms?

Answer Ch. 8 Carbon Chemistry

A $\text{C}_6\text{H}_{12}\text{O}_6$

B BF_3

C MoCl_2

D CsI

Z