

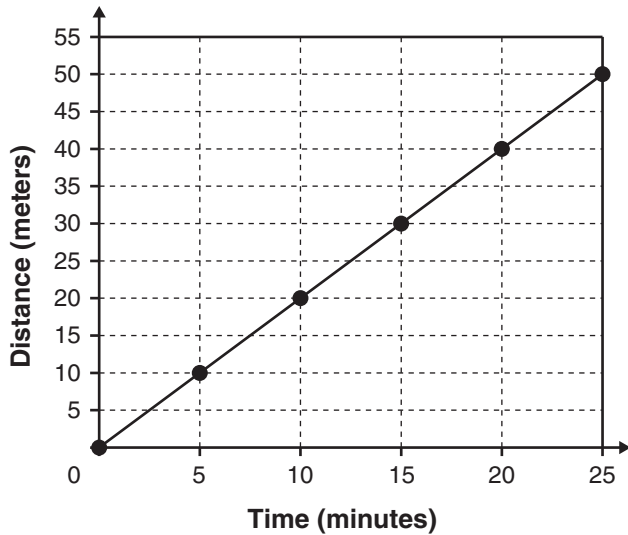
Released Test Questions

Science

8

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

Object Movement



What is the average speed of the object?

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

CSZ20716

- 2** 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

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

CSZ20855

- 3** 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?

- 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

CSZ20870

- 4** 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?

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

CSZ30338

- 5** Which of the following represents the velocity of a moving object?

A 40
 B 40 m north
 C $40 \frac{\text{m}}{\text{s}}$
 D $40 \frac{\text{m}}{\text{s}}$ north

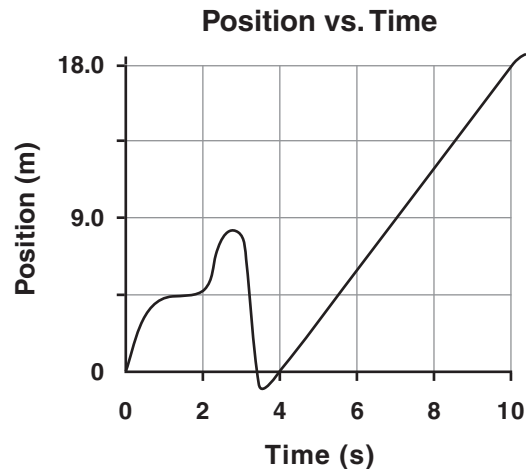
CSZ30494

- 6** Which characteristic of motion could change without changing the velocity of an object?

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

CSZ20754

- 7** 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?

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

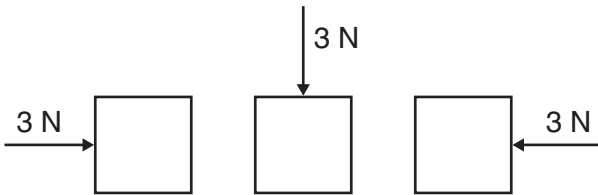
CSZ30195

Released Test Questions

Science

8

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



What can be concluded about these forces?

- 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.

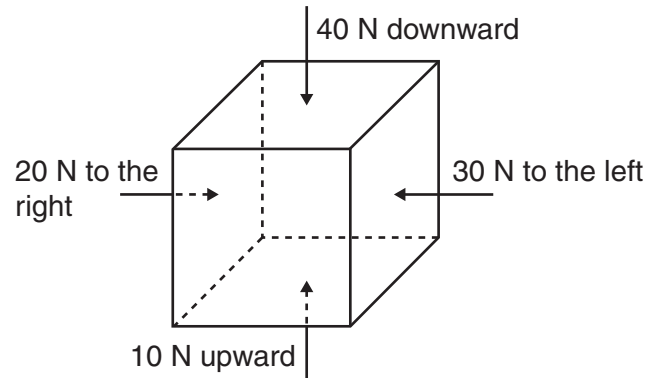
CSZ30259

- 9** 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

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

CSZ30263

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



This box will increase in speed

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

CSZ30761

- 11** 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?

- 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

CSZ30764

- 12** A piece of pine wood floats on the surface of a lake because the water exerts

- 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.

CSZ40404

- 13** 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?

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

CSZ20852

- 14** Which of the following *best* describes an atom?

- 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

CSZ30661

- 15** Which of the following is found farthest from the center of an atom?

- A nucleus
- B proton
- C neutron
- D electron

CSZ30564

- 16** 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

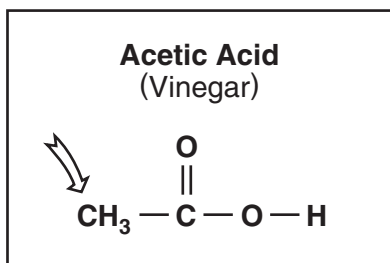
- A a solution.
- B a mixture.
- C a compound.
- D an element.

CSZ20823

Released Test Questions

Science

17



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

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

CSZ20659

18

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

- 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

19

Which class of elements *best* conducts electricity?

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

CSZ20880

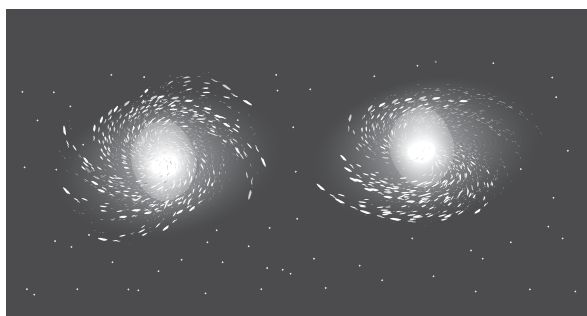
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In a comparison of metals to nonmetals, metals tend to have

- 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.

CSZ30771

21



The galaxies pictured above would *best* be classified as

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

CSZ40051

22

A galaxy is *best* described as a cluster of

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

CSZ30179

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

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

CSZ20679

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

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

CSZ30169

- 25** 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?

A 1
 B 2
 C 3
 D 4

CSZ30150

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

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

CSZ30457

- 27** As a sample of water turns to ice,

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.

CSZ30112

- 28** 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

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

CSZ20786

Released Test Questions

Science

8

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

- 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.

CSZ30696

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

- A $\text{C}_6\text{H}_{12}\text{O}_6$
- B BF_3
- C MoCl_2
- D CsI

CSZ30651