

2nd Grading Period CBA Review

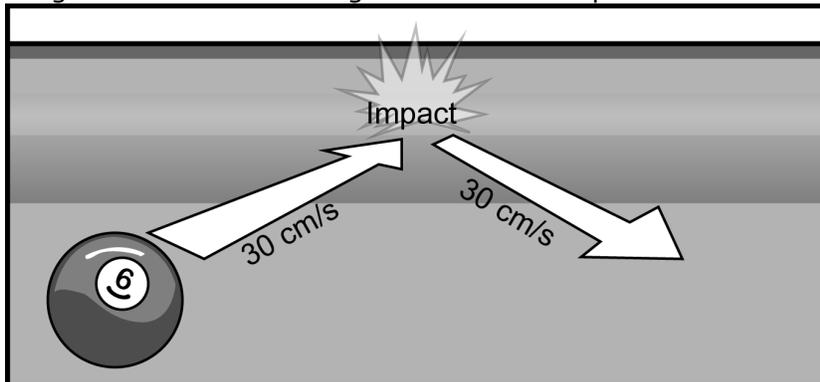
- 1 Which of the following examples shows that a chemical reaction has occurred?
- A A rock breaks into smaller pieces when it is struck with a hammer.
 - B Bubbles form when baking soda is added to vinegar and mixed.
 - C A cup of water turns pink when a few drops of red food coloring are added.
 - D A solid is formed when heat is removed from a sample of water.
- 2 In order to describe the velocity of an object, which three pieces of data are needed?
- A
 - The mass of the object in grams
 - The speed at which the object traveled
 - The pull of gravity on the object
 - B
 - The distance traveled by the object
 - The time taken to travel
 - The direction of travel
 - C
 - The mass of the object in grams
 - The time taken to travel
 - The acceleration of the object
 - D
 - The distance traveled by the object
 - The force the object had on another object
 - The mass of the object in grams
- 3 A student places a piece of a potato into a container of hydrogen peroxide. One observation the student makes is that bubbles form around the potato. The presence of bubbles might indicate the formation of a new substance because bubbles -
- A could show that a gas is forming.
 - B always rise to the top of a liquid.
 - C are almost always perfectly spherical.
 - D usually burst after a few minutes.
- 4 Which of the following describes the speed, but not the velocity of an object?
- A 60 miles per hour
 - B 60 miles per hour south
 - C 30 miles north
 - D 30 miles per hour south
- 5 Which of following gives the best description of speed?
- A A school bus travels 40 km in an hour.
 - B An airplane flies south for a time of 2 h.
 - C A freight train travels 500 km in a day.
 - D A hot air balloon travels at 35 km/h from Albuquerque to Santa Fe.

- 6 Four students performed four different investigations by combining different substances. Their results are shown in the table provided.

Experiment 1	Experiment 2	Experiment 3	Experiment 4
<ul style="list-style-type: none">• Powder added to liquid• Result: Bubbles produced	<ul style="list-style-type: none">• Two liquids combined• Result: Level of liquid goes up	<ul style="list-style-type: none">• Crystals added to liquid• Result: Crystals dissolve completely	<ul style="list-style-type: none">• Solid added to liquid• Result: Solid sinks to bottom of container

In which experiment are new substances being formed?

- A Experiment 1
 - B Experiment 2
 - C Experiment 3
 - D Experiment 4
- 7 An image of a cue ball striking the surface of a pool table is shown.



All of the following describe the acceleration of the cue ball EXCEPT -

- A the ball changed direction when it hit the side of the table.
 - B the ball traveled at 30 cm/s while it was moving.
 - C the ball was at rest until it was struck by the pool cue.
 - D the ball eventually came to a stop due to friction.
- 8 Hydrogen peroxide breaks down to form water and oxygen gas. When this reaction occurred, the following observations were made:
- I. The mass of the solution remains the same.
 - II. Phase changes are observed.
 - III. The color of the solution remains clear.
 - IV. The temperature of the solution increases.

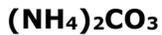
Which observation is evidence that a chemical change has occurred?

- A Observation I
- B Observation II
- C Observation III
- D Observation IV

9 When an object accelerates, what about its motion changes?

- A Speed must change, but not velocity.
- B Both speed and velocity must change.
- C Velocity must change, but not speed.
- D Either speed or velocity can change.

10 Which of the following correctly identifies the number of each element involved in the chemical formula?



A

- N - 2
- H - 4
- C - 3
- O - 3

B

- N - 2
- H - 4
- C - 1
- O - 3

C

- N - 2
- H - 8
- C - 0
- O - 3

D

- N - 2
- H - 8
- C - 1
- O - 3

11 Which of the following is a complete description of the velocity of an object in motion?

- A A train travels due west at 90 km/h.
- B A 7 kg bowling ball rolls a distance of 20 m in 3 s.
- C A runner jogs 6 km/h for 10 minutes.
- D Birds fly 600 km south for the winter.

12 Shown here is the chemical formula for ammonia.



The 2 in front of the chemical formula for ammonia means that there are two –

- A atoms of ammonia.
- B molecules of ammonia.
- C atoms of ammonia in each molecule.
- D nitrogen atoms in each molecule.

13 Which of the following distinguishes the speed of an object from its velocity?

- A Calculating speed requires knowing distance; calculating velocity does not require knowing distance.
- B Velocity includes the direction of the motion of an object; speed does not include direction of motion.
- C Speed includes the time it took the object to travel; velocity does not include travel time.
- D Speed includes the direction of the motion of an object; velocity does not include direction of motion.

- 14** Because the Law of Conservation of Matter states that matter cannot be created or destroyed, in a chemical equation –
- A** all of the subscripts in the formula of the reactants must equal that of the product.
 - B** the number of atoms of each element in the reactants must be the same in the products.
 - C** all of the coefficients in the formulae for the reactants must equal that of the products.
 - D** the chemical symbol of each element in the reactants must appear the same number of times in the products.

- 15** Examine the table provided.

Object	Mass	Acceleration
Basketball	0.45 kg	5 m/s ²
Football	0.30 kg	100 m/s ²
Racquetball	0.01 kg	50 m/s ²
Golf ball	0.02 kg	10 m/s ²

Which of the objects is producing the greatest force?

- A** Basketball
 - B** Football
 - C** Racquetball
 - D** Golf ball
- 16** Which of the following accurately describes the number of aluminum and oxygen atoms in $4\text{Al}_2\text{O}_3$?
- A** 8 atoms of Aluminum and 12 atoms of Oxygen
 - B** 2 atoms of Aluminum and 3 atoms of Oxygen
 - C** 6 atoms of Aluminum and 7 atoms of Oxygen
 - D** 8 atoms of Aluminum and 3 atoms of Oxygen
- 17** What amount of force needs to be applied to a 20 kg bowling ball to give it an acceleration of 5 m/s²?
- A** 4 N
 - B** 25 N
 - C** 100 N
 - D** 250 N

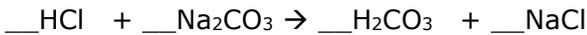
- 18** The chemical formula for the mineral dolomite is provided.



How many atoms of carbon are present in dolomite?

- A** 2
- B** 3
- C** 6
- D** 8

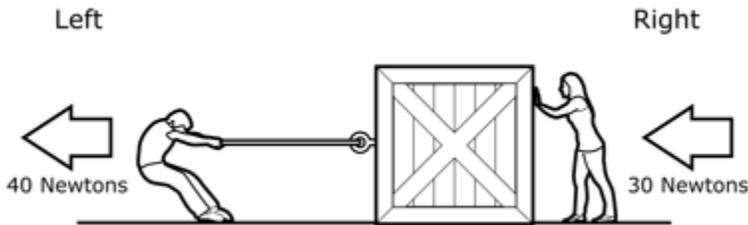
19 An incomplete chemical equation is given here.



Which set of numbers, placed in the blanks as the coefficients, will balance the equation shown ?

- A 2, 2, 1, 1
- B 2, 1, 2, 1
- C 2, 1, 1, 2
- D 1, 2, 1, 2

20 Two students apply force to a box at rest on the floor.



What is the total amount of force in Newton's acting on the box and in which direction?

- A 10 N Left
- B 10 N Right
- C 70 N Left
- D 70 N Right

21 Calculate the net force in Newtons of the following situation.

$$\leftarrow 2 \text{ N} + \rightarrow 8 \text{ N} =$$

- A $\leftarrow 10 \text{ N}$
- B $\leftarrow 6 \text{ N}$
- C $\rightarrow 10 \text{ N}$
- D $\rightarrow 6 \text{ N}$

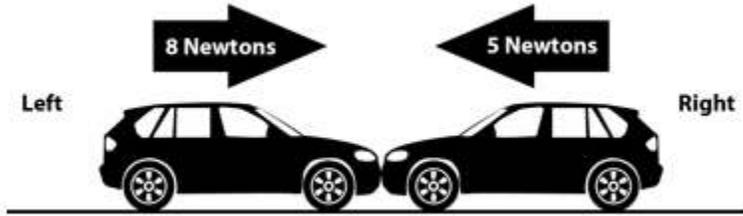
22 A dog walks a distance of 100 ft in 20 s of time. What is the dog's speed in feet per second?

- A 5 ft/s
- B 80 ft/s
- C 120 ft/s
- D 2000 ft/s

23 Safety belts protect people in cars in the event of an accident because, according to Newton's Laws of Motion, when an impact causes the car to suddenly change its motion, -

- A the people in the car will continue to move in the same direction and at the same speed as before the impact.
- B the speed of the car always increases, giving it greater force since the mass will remain the same.
- C the speed of the people always increases, since now they have, not one, but two forces acting on them.
- D the car now has a greater overall mass - its own mass plus the mass of the object by which it has been struck.

24 The image provided shows two toy cars pushing against each other with a force given in Newtons.



Which of the following describes how the two-car system will behave? The two cars will -

- A accelerate steadily to the right.
- B move at a constant speed to the right.
- C accelerate steadily to the left.
- D move at a constant speed to the left.

25 An object is moving to the right with a force of 20 N. What will happen if a force of 20 N starts acting on it in the opposite direction?

- A The object's velocity will increase.
- B The object's velocity will decrease.
- C The object will come to a stop.
- D The object will move at the same velocity.

26 In which of the following situations would the force shown, acting on a sphere of the given mass, result in the greatest acceleration?

