

Test 1 Review

Student: _____

1. In the text, the equation $V = tk$ is used to describe the relationship between the volume of a gas tank and the time required to fill it. The symbol "k"
 - A. has units of min/gal.
 - B. is a variable.
 - C. is the proportionality constant.
 - D. depends on the length of time.
2. Claims that appear to be pseudoscience should be
 - A. accepted if it is said to have scientific validity.
 - B. tested experimentally.
 - C. accepted if promoted by news media.
 - D. All of the above.
3. In the equation $A = \pi r^2$, π (pi) is a
 - A. manipulated variable.
 - B. responding variable.
 - C. numerical constant.
 - D. constant that depends on the size of the circle.
4. The re-creation of an event by comparing two situations in which all the factors are identical except one is called a
 - A. tentative experiment.
 - B. cause and effect demonstration.
 - C. statistical test of truth.
 - D. controlled experiment.
5. A statement describing a relationship that is observed in nature to occur consistently time after time is a (an)
 - A. hypothesis.
 - B. scientific law.
 - C. scientific theory.
 - D. model.
6. A scheme of thought that has survived a test of detailed examination for long periods of time is a (an)
 - A. hypothesis.
 - B. scientific law.
 - C. scientific theory.
 - D. model.

7. A heavy object and a light object are dropped from rest at the same time in a vacuum. The heavier object will reach the ground
- A. before the lighter object.
 - B. at the same time as the lighter object.
 - C. after the lighter object.
 - D. It depends on the shape of the object.
8. Gravity is an attractive force between
- A. all massive objects.
 - B. Earth and objects on Earth.
 - C. Earth and Moon, and objects on Earth.
 - D. all objects everywhere.
9. The newton is a unit of
- A. motion.
 - B. energy.
 - C. power.
 - D. force.
10. A boy on a skateboard pushes off the ground with his foot. He and the skateboard accelerate down the sidewalk due to the force
- A. he exerts against the ground.
 - B. between the skateboard wheels and the ground.
 - C. the ground exerts against his foot.
 - D. of gravity acting on the skateboard.
11. The mass of a 100-N sack of seed is closest to
- A. 10 kg.
 - B. 10 lb.
 - C. 98 kg.
 - D. 1,000 kg.
12. A block of iron is transported to the Moon. Which of the following is true?
- A. both its mass and weight remain unchanged.
 - B. its mass decreases, but its weight remains the same.
 - C. its mass remains the same, but its weight decreases.
 - D. both its mass and weight decrease.
13. If you double the mass of an object while an unbalanced force remains constant,
- A. the object moves at half the speed.
 - B. the acceleration of the object is doubled.
 - C. the object will gradually slow down.
 - D. The acceleration of the object is halved.

14. If you consider the total distance and total time for a trip, you are calculating a (an)
- A. instantaneous speed.
 - B. constant speed.
 - C. average speed.
 - D. non-uniform speed
15. You should "follow through" when hitting a ball because
- A. this increases the force.
 - B. momentum is conserved.
 - C. of the relationship $\Delta p = Ft$.
 - D. momentum is mv .
16. The quantity that has units $\frac{\text{kg} \cdot \text{m}^2}{\text{s}^2}$ is known as a
- A. joule.
 - B. newton.
 - C. horsepower.
 - D. watt.
17. Which one of the following has an appropriate unit?
- A. work - joule
 - B. force - newton
 - C. power - watt
 - D. All of the above.
18. When you throw a ball into the air, its kinetic energy
- A. equals $\frac{1}{2}mv^2$.
 - B. equals the work you did on the ball.
 - C. is converted to potential energy as it goes higher. —
 - D. All of the above.
19. You can find the kinetic energy of a book of a certain mass just before it hits the floor after falling a certain distance by using which equation?
- A. $W = Fd$
 - B. $K.E. = \frac{1}{2}mv^2$
 - C. $P.E. = mgh$
 - D. None of the above.
20. A 250-g ball travels at a velocity of 40 m/s. Its momentum is
- A. 4 kg·m/s.
 - B. 10 kg·m/s.
 - C. 160 kg·m/s.
 - D. 10,000 kg·m/s.