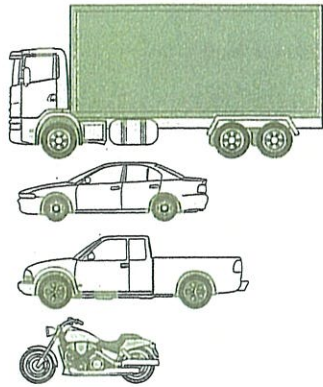


- 7 Every moving object has kinetic energy. This illustration shows four vehicles. Assume that they are all traveling at the same speed on a highway.



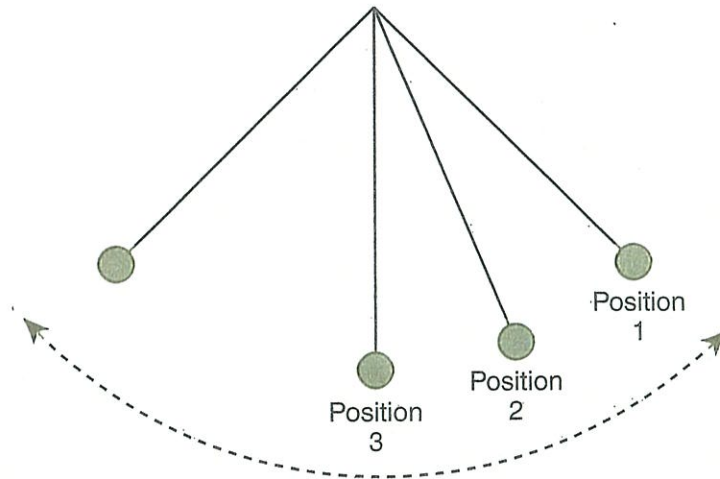
What do you know about the kinetic energy of the vehicles?

- A. The motorcycle has the most kinetic energy because it is the vehicle with the least mass.
- B. All of the vehicles have the same kinetic energy because they are moving at the same speed.
- C. The delivery van has the greatest kinetic energy because its mass is greater than that of the other vehicles.
- D. The delivery van has the greatest kinetic energy because it has the most tires in contact with the pavement.
- 8 Andre boarded a train at Lincoln Station. The train left the station at 9:10 p.m. and traveled, without stopping, 6 miles to Union Station. What additional information does Andre need to find the average speed of the train from Lincoln Station to Union Station?
- F. the direction the train traveled
- G. the time the train left Union Station
- H. the initial and maximum speeds of the train
- I. the time the train arrived at Union Station
- 9 Measuring acceleration requires the appropriate units. Scientists measure acceleration using a standardized set of units that are part of the SI system. Which are SI units for acceleration?
- A. N
- B. m/s
- C. m/s^2
- D. $kg \cdot m/s$

Benchmark Review

- 10** Two identical space probes are orbiting Jupiter. Scientists determine that one of the space probes has a larger gravitational force acting on it than the other. Which of the following is the most likely reason for the difference?
- F. One space probe reached Jupiter before the other.
 - G. One space probe has more air resistance than the other.
 - H. Only one space probe is exerting a gravitational force on the other.
 - I. One space probe is closer to Jupiter than the other.
- 11** Blair and Aaron competed in a 400-m running race. Blair finished the race in 55 s and came in first. Aaron finished the race in 58 s and came in second. Which of the following must have been greater for Blair than for Aaron?
- A. maximum speed during the race
 - B. average speed for the entire race
 - C. speed for the last 100 m of the race
 - D. initial speed for the first 100 m the race

- 12** When a pendulum is released, it swings back and forth. The speed and position change throughout each swing. The illustration identifies three positions of the pendulum during its swing.



At which point does the pendulum weight have the greatest amount of mechanical energy?

- F. Position 1
- G. Position 2
- H. Position 3
- I. Mechanical energy does not change.