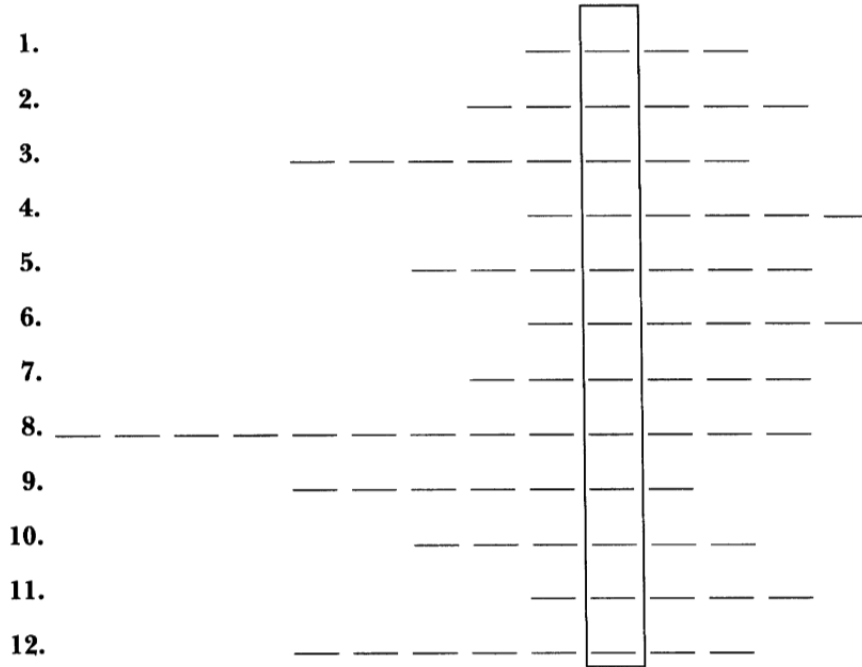


STUDY GUIDE

Chapter 3

Accelerated Motion

Solve the puzzle below by writing the term in the diagram that best completes each statement. You will find another term spelled vertically in the black box.



- Force equals _____ times acceleration.
- Newton's _____ law of motion states that a net force acting on an object causes the object to accelerates in the direction of the force..
- The law of inertia states that when the forces acting upon an object are _____ the motion of the object will not change.
- The unit of force is the _____ .
- Gravity causes _____ objects to accelerate.
- The force of gravity acting upon the mass of an object is the object's _____ .
- The _____ the force acting on an object, the greater the acceleration of the object,
- The force air exerts on a moving object is _____ _____ . (2 words)
- Weight is a measure of the force of _____ .
- Any change in an object's position is _____ .
- In the equation $F = m \times a$, F stands for _____ .
- The highest velocity reached by a falling object is its _____ velocity.

Fill in the blank below will the term in the black box.

Force equals _____ times mass.

REINFORCEMENT

Chapter 3

Accelerated Motion

Use the equation $F = m \times a$ to solve the following problems. Show your calculations in the spaces provided.

1. How much force is needed to accelerate a 1000-kg car at a rate of 3 m/s/s?

2. If a 70-kg swimmer pushes off a pool wall with a force of 250 N, at what rate will the swimmer accelerate from the wall?

3. A weightlifter raises a 200-kg barbell with an acceleration of 3 m/s/s. How much force does the weightlifter use to raise the barbell?

4. A dancer lifts his partner above his head with an acceleration of 2.5 m/s/s. The dancer exerts a force of 200 N. What is the mass of the partner?

Answer the following questions.

1. What does Newton's second law of motion state? _____

2. What two factors affect the rate of acceleration of an object? _____

3. At what rate does gravity cause objects to accelerate? _____
4. What is air resistance? _____
5. What three factors affect the amount of air resistance on an object? _____

6. What is terminal velocity? _____
