Name: _____ Date: _____

Why Don't Fast Trains Feel Fast? 6th Grade Kinematics Quiz

Analyze the mechanics of motion by calculating the velocity of animals and predicting the acceleration of maglev trains in various travel scenarios.

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1. A Peregrine Falcon dives with a constant velocity of 90 meters per second. If it maintains this motion for 3 seconds, what is its total displacement?

A. 30 meters
B. 270 meters
C. 93 meters
D. 180 meters

2. An Olympic sprinter reaches a top speed of 12 m/s starting from rest (0 m/s) in exactly 4 seconds. Their average acceleration is _____ m/s^2.

A. 48
B. 8
C. 3
D. 16

3. If a honeybee flies 5 meters forward and then 5 meters backward to its starting point, its total displacement is 10 meters.

A. True
B. False

4. A Maglev train travels at a constant velocity of 120 km/h. Why is its acceleration considered zero during this period?

A. Because it is moving too fast to measure
B. Because there is no change in its speed or direction
C. Because it is hovering above the tracks
D. Because the displacement is increasing

5. To find the average velocity of a migrating whale, you must divide the total displacement by the _____.

A. Acceleration
B. Mass
C. Total Time
D. Distance

6. In kinematics, an object that is slowing down is experiencing a form of acceleration.

A. True
B. False

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7. A skateboarder starts at 2 m/s and increases their velocity to 10 m/s over 2 seconds. What is the rate of change in their motion?

A. 4 m/s^2
B. 8 m/s^2
C. 5 m/s^2
D. 20 m/s^2

8. A vector quantity, such as velocity, differs from a scalar quantity because it includes both magnitude and _____.

A. Weight
B. Direction
C. Volume
D. Speed

9. If a drone travels 100 meters North and then 50 meters South, what is the magnitude of its final displacement from the starting point?

A. 150 meters
B. 50 meters
C. 0 meters
D. 75 meters

10. A car traveling at a constant 60 mph around a sharp circular curve has an acceleration of zero.

A. True
B. False