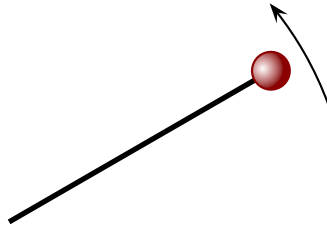


Question 1

A ball attached to a string swings in a horizontal circle.

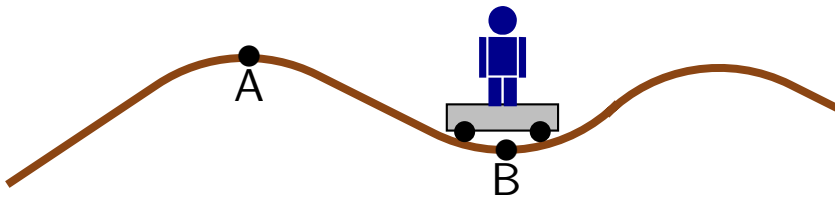


Suppose that the tension in the string is decreased while the length remains constant. Which of the following is true?

1. The velocity remains constant.
2. The velocity increases.
3. The velocity decreases.

Question 2

A cart carrying a passenger moves along the road whose profile is as illustrated. The passenger stands on a scale, which measures the normal force exerted on the passenger.

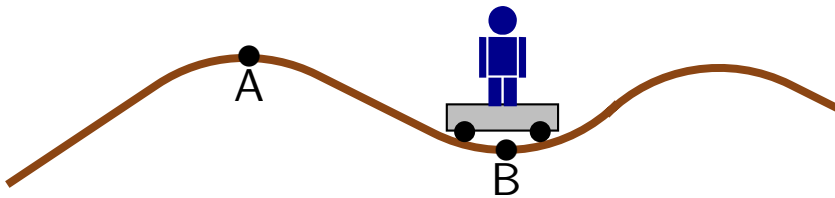


Suppose that the cart is at rest at location B. How does the scale reading compare to the gravitational force on the person?

1. Same.
2. Larger.
3. Smaller.

Question 3

A cart carrying a passenger moves along the road whose profile is as illustrated. The passenger stands on a scale, which measures the normal force exerted on the passenger.

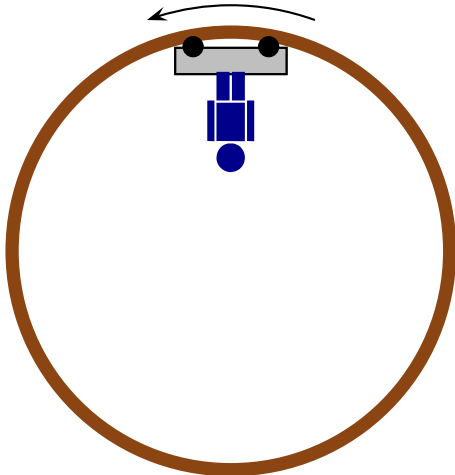


Suppose that the cart is moving at location B. How does the scale reading compare to the gravitational force on the person?

1. Same.
2. Larger.
3. Smaller.

Question 4

Two identical rollercoaster carts complete the same vertical loop. Cart A passes the high point with a slower speed than cart B. Consider the normal force exerted by the track on each cart when it is at the loop high point.



Which of the following is true?

1. Normal force on A is same as normal force on B.
2. Normal force on A is larger than normal force on B.
3. Normal force on A is smaller than normal force on B.