

Question 1

A dog sits on the floor of an elevator, which moves down with gradually increasing speed. The dog is always in contact with the floor.

During this time, which of the following is true about the works done on the dog?

1. $W_{\text{normal}} > 0$ and $W_{\text{grav}} > 0$
2. $W_{\text{normal}} > 0$ and $W_{\text{grav}} < 0$
3. $W_{\text{normal}} < 0$ and $W_{\text{grav}} > 0$
4. $W_{\text{normal}} < 0$ and $W_{\text{grav}} < 0$

Warm Up Question 1

A leaf falls to the ground at a constant speed. Is the net work done on the leaf positive, negative or zero? Explain your answer.

1. Zero. Kinetic energy is constant.
2. Negative. The leaf falls and loses energy.
3. Negative. The leaf moves down.
4. Positive. The leaf moves down and gravity does positive work.

Question 2

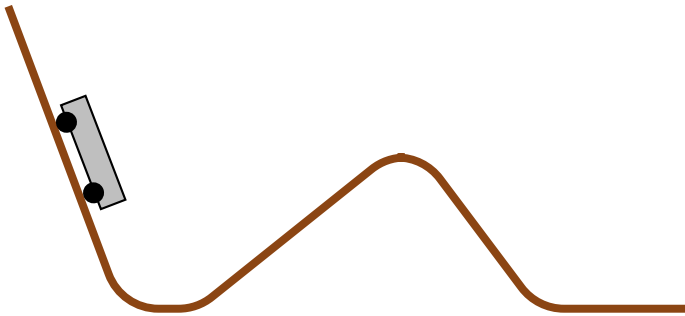
An object can slide left or right along a linear track. There is friction between the object and the track.

Which of the following is true regarding work done by the friction force?

1. Always positive.
2. Always negative.
3. Always zero.
4. Positive when object moves right, negative when object moves left.
5. Negative when object moves right, positive when object moves left.

Question 3

A cart slides along a track as illustrated.

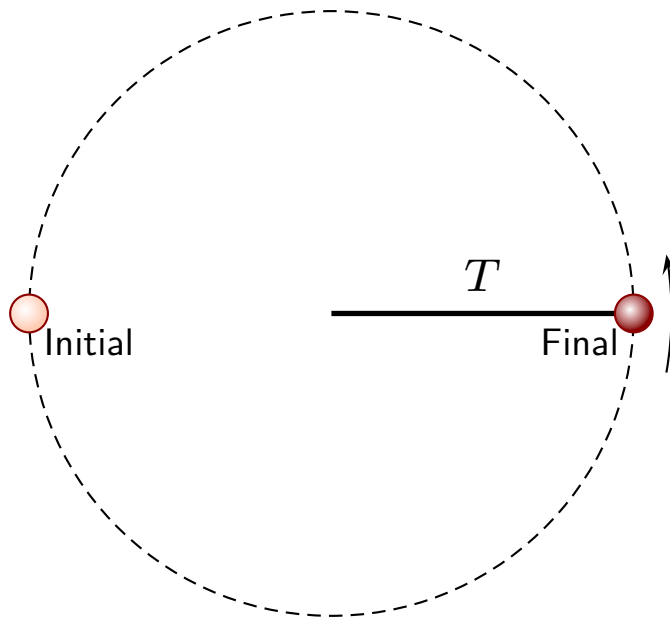


Which of the following is true regarding work done by the normal force, W_n , on the cart?

1. $W_n = 0$ throughout.
2. $W_n > 0$ throughout.
3. $W_n < 0$ throughout.
4. $W_n > 0$ when it descends, $W_n < 0$ when it ascends.
5. $W_n < 0$ when it descends, $W_n > 0$ when it ascends.

Question 4

A ball swings in a horizontal circle with a constant speed.



Which of the following is true regarding the work done by the tension as the ball moves from the initial to the final location?

1. $W = 0$.
2. $W > 0$.
3. $W < 0$.