Which require more work, lifting a 10-kg load a vertical distance of 2 m or lifting a 5-kg load a vertical distance of 4 m?

A. 5-kg load
B. 10-kg load
C. The same work

A 100-kg box was moved 10 m along a horizontal surface. Find a work of gravity on this box.

A. +9810 J
B. -9810 J
C. 0 J

Suppose that a car has 2000 J of kinetic energy. What will be its kinetic energy if its velocity increases twice?

A. 2000 J
B. 4000 J
C. 8000 J
D. 16000 J

A truck moving with the speed 40 mph and a car moving 120 mph have the same kinetic energy. How many times greater is the mass of the truck than the one of the car?

A. 3 times

B. 9 times

C. 6 times

D. 27 times

A person starts from rest and begins to run. The runner puts a certain amount of kinetic energy into herself and

A. More kinetic energy into the ground
B. Less kinetic energy into the ground
C. The same kinetic energy into the ground

A person starts from rest and begins to swim. The swimmer puts a certain amount of kinetic energy into herself and

A. More kinetic energy into the water
B. Less kinetic energy into the water
C. The same kinetic energy into the water

A car moving with a speed 30 mph stops after moving 20 m after the brakes are applied. Find the stoppage distance for this car moving with a speed 60 mph.

A. 20 m

B. 40 m

C. 60 m

D. 80 m

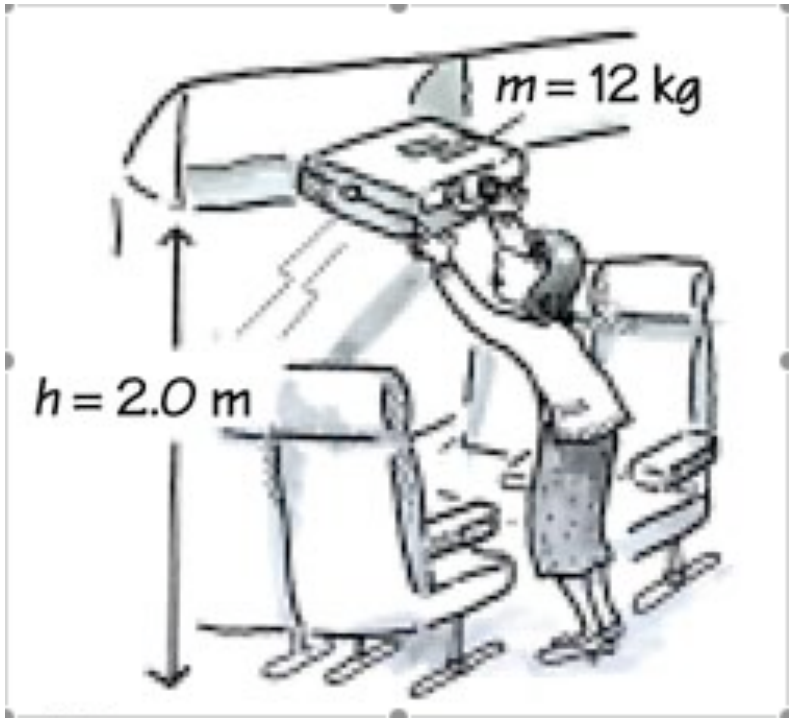
E. Not enough data

Find a net work to accelerate a toy car with a mass 1 kg from 0 m/s to 1 m/s.

A. 0 J
B. 0.25 J
C. 0.5 J
D. 1 J
E. 2 J

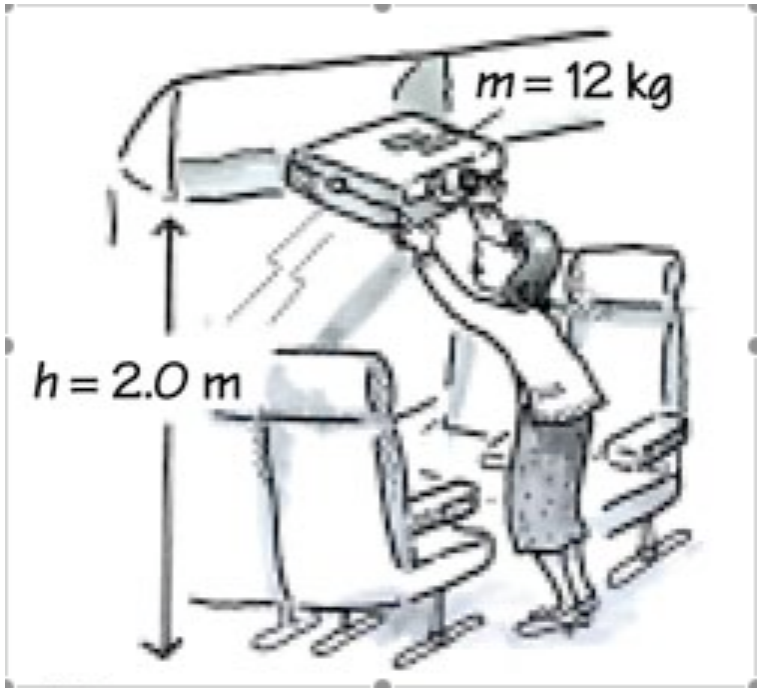
Find a net work to accelerate a toy car with a mass 1 kg from 0 m/s to 2 m/s.

A. 0.5 J
B. 1 J
C. 2 J
D. 4J



Calculate the work done in lifting a 12 kg suitcase from floor level up to a luggage rack 2.0 m above the floor

A. 24 J
B. 235 J
C. 118 J



Calculate the potential energy of the suitcase from the floor level

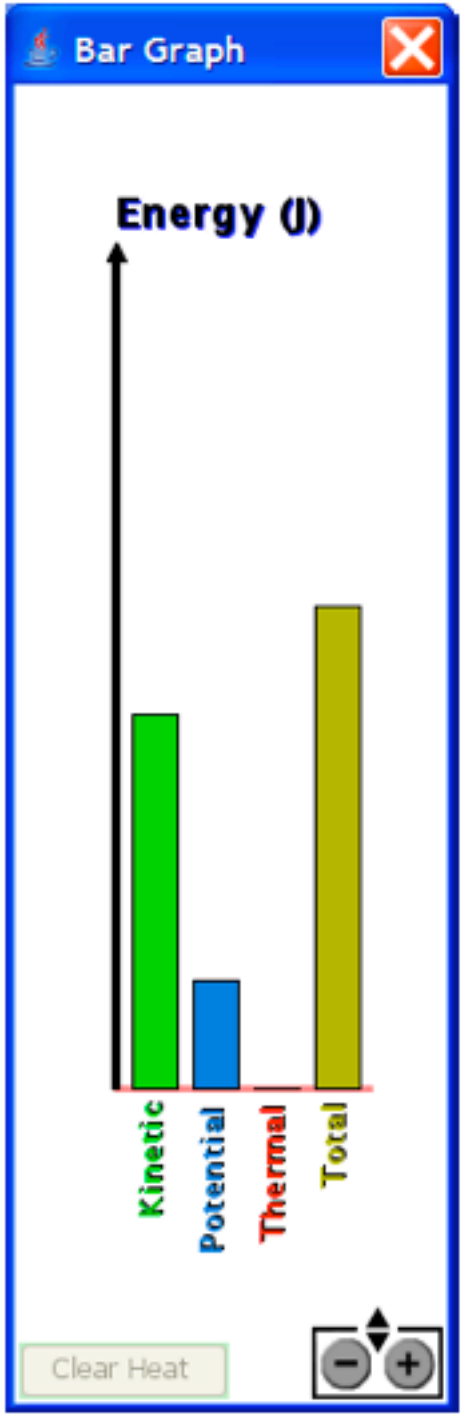
A. 24 J
B. 235 J
C. 118 J
D. 0 J

What is the kinetic energy of the 12 kg suitcase falling from 2.0 m luggage rack to the floor?

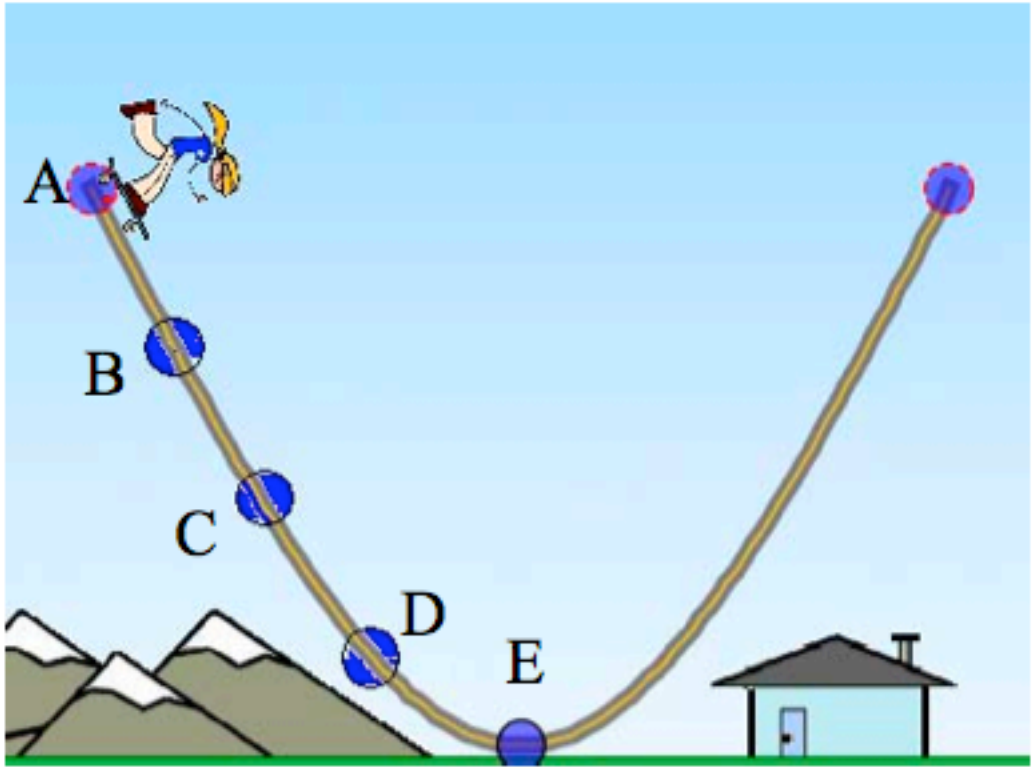
A. 24 J
B. 235 J
C. 118 J
D. 0 J

What is the potential energy of the 12 kg suitcase on the floor?

A. 24 J
B. 235 J
C. 118 J
D. 0 J



2. The bar graph shows the energy of the Skater, where could she be on the track?



7. The Energy chart of a boy skating looks like this →

How would you describe his speed?

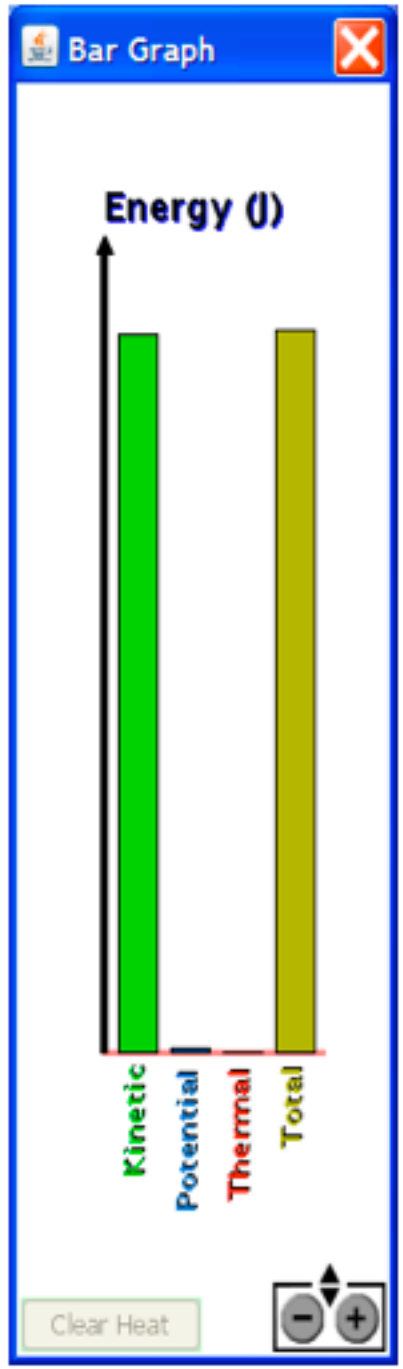
A. He is at his maximum speed

B. He is stopped

C. He is going his average speed

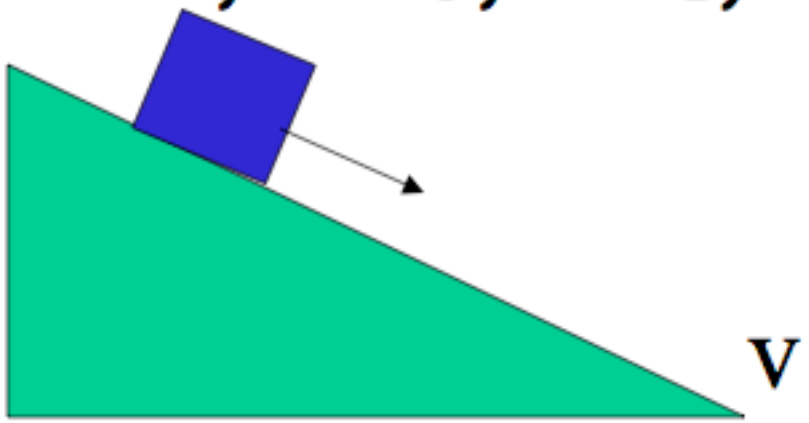
D. He is going slow

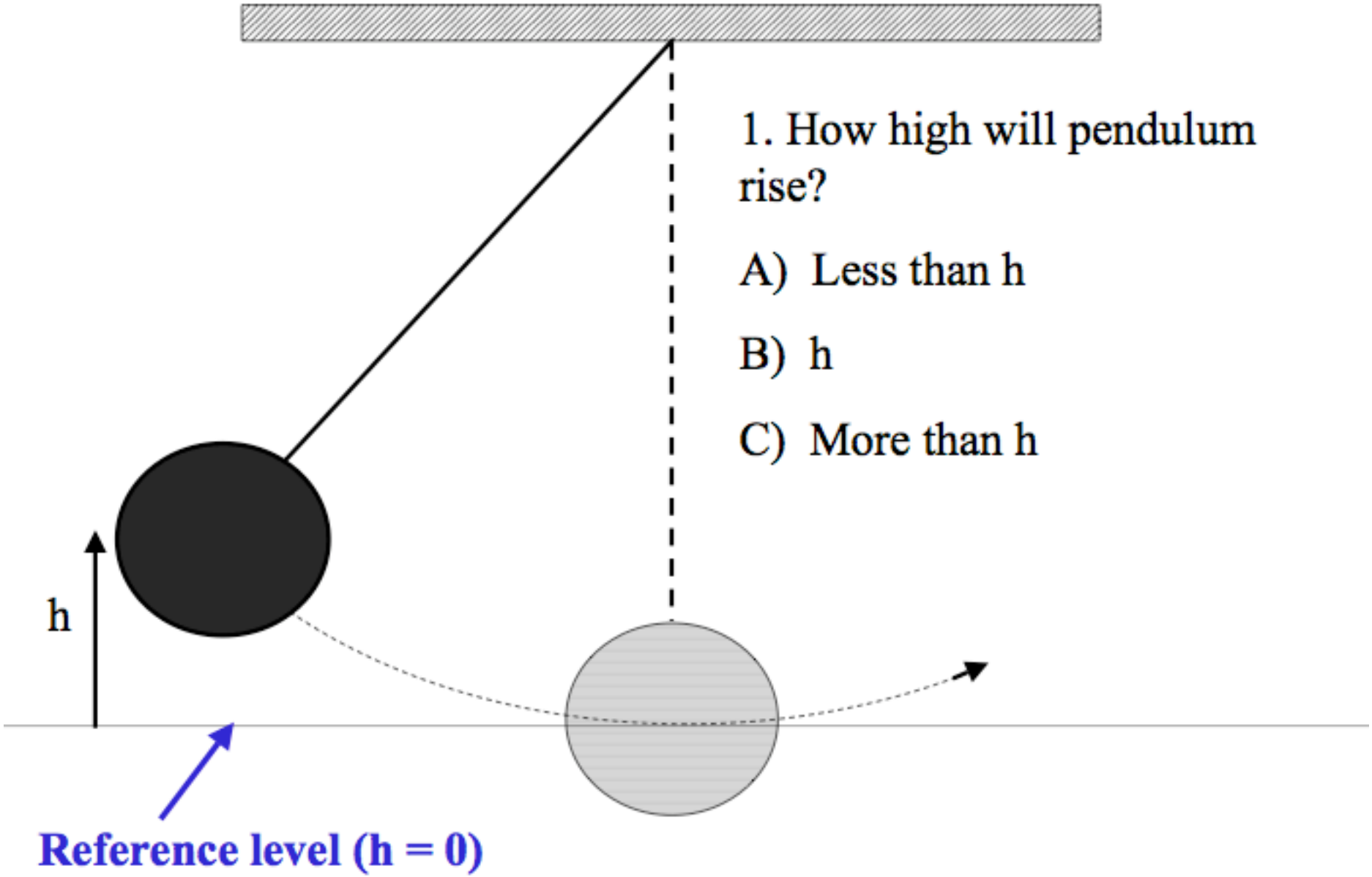
E. He is going fast

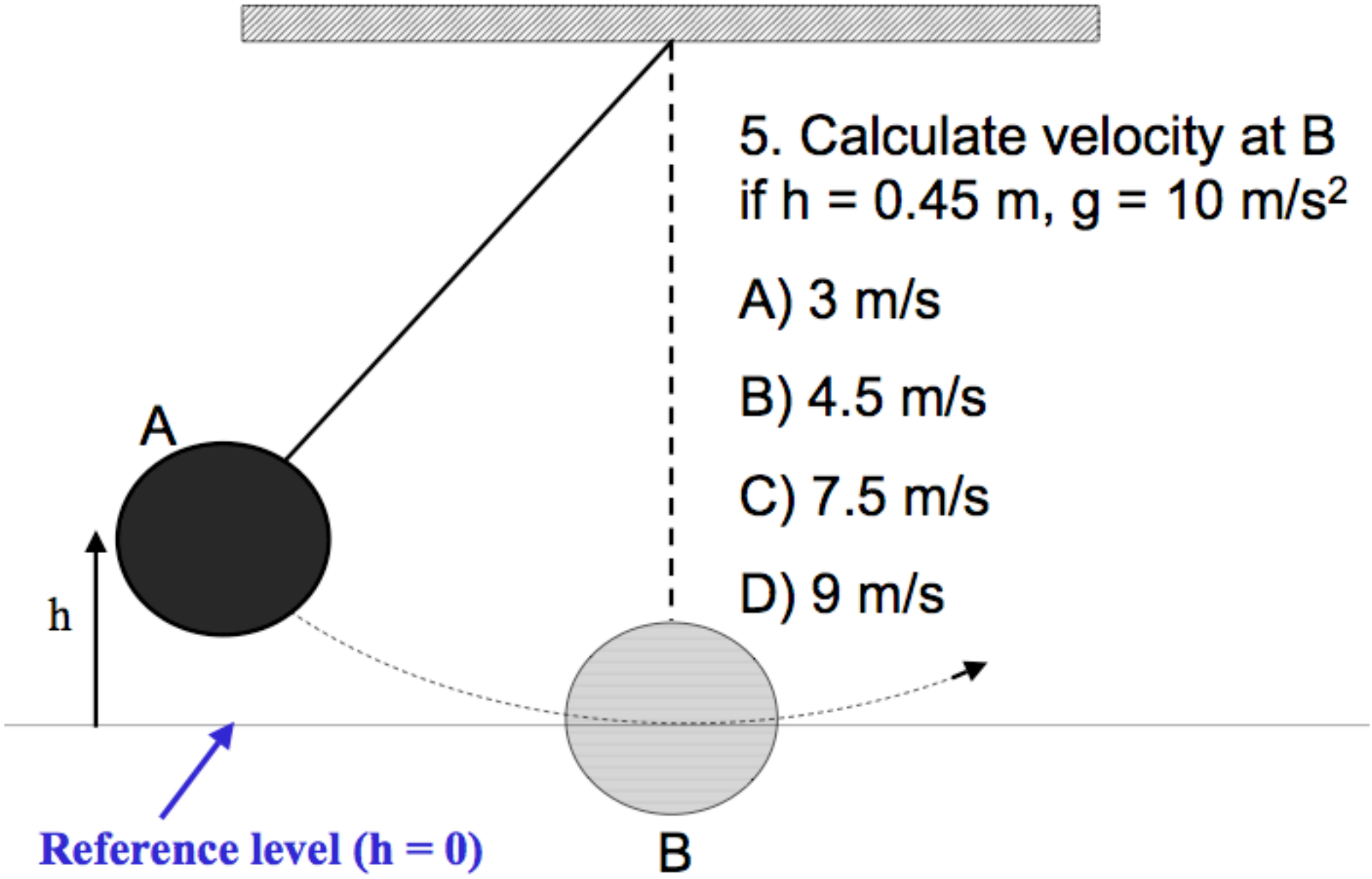


6. A block initially at rest is allowed to slide down a frictionless ramp and attains a speed v at the bottom. To achieve a speed 2v at the bottom, how many times higher must the new ramp be?

A) $\sqrt{2}$ B) 2 C) 3 D) 4 E) none of these.




1. How high will pendulum rise?
A) Less than h
B) h
C) More than h
h
Reference level (h = 0)



5. Calculate velocity at B
if h = 0.45 m, g = 10 m/s^2

A) 3 m/s

B) 4.5 m/s

C) 7.5 m/s

D) 9 m/s

A child moving at constant velocity carries a 2 N ice-cream cone 1 m across a level surface. What is the net work done on the ice-cream cone?

A. 0 J

B. 0.5 J

C. 2 J

D. 19.6 J

A horizontal force of 200 N is applied to move a 55 kg television set across a 10 m level surface. What is the work done by this force on the television set?

A. 550 J

B. 2000 J

C. 11000 J

D. 110000 J

Ball A has triple the mass and speed of ball B. What is the ratio of kinetic energy of ball A to ball B?

A. 3

B. 6

C. 9

D. 27

A child pulls a balloon for 12 m with a force of 1.0 N at an angle 60^0 below horizon. How much work does the child do on the balloon?

A. -12 J

B. -6.0 J

C. 6.0 J

D. 12 J

If kinetic friction is the only force acting on an object during a given physical process, which of the following assumptions can be made in regard to object's kinetic energy?

A. KE decreases
B. KE increases
C. KE remains constant
D. KE decreases and then increases

Can we stop a big runaway truck by applying a small force of 10 N?

A. Absolutely not
B. It depends only on the initial velocity of the truck
C. It can be done for any initial velocity over a long period of time

A 5000-kg missile, flying with a speed 100 m/s, exploded and separated into 5 equal parts. What is a net change of the momentum of missile?

A. 500000 kg•m/s
B. 0 kg•m/s
C. 1000000 kg•m/s
D. 100000 kg•m/s

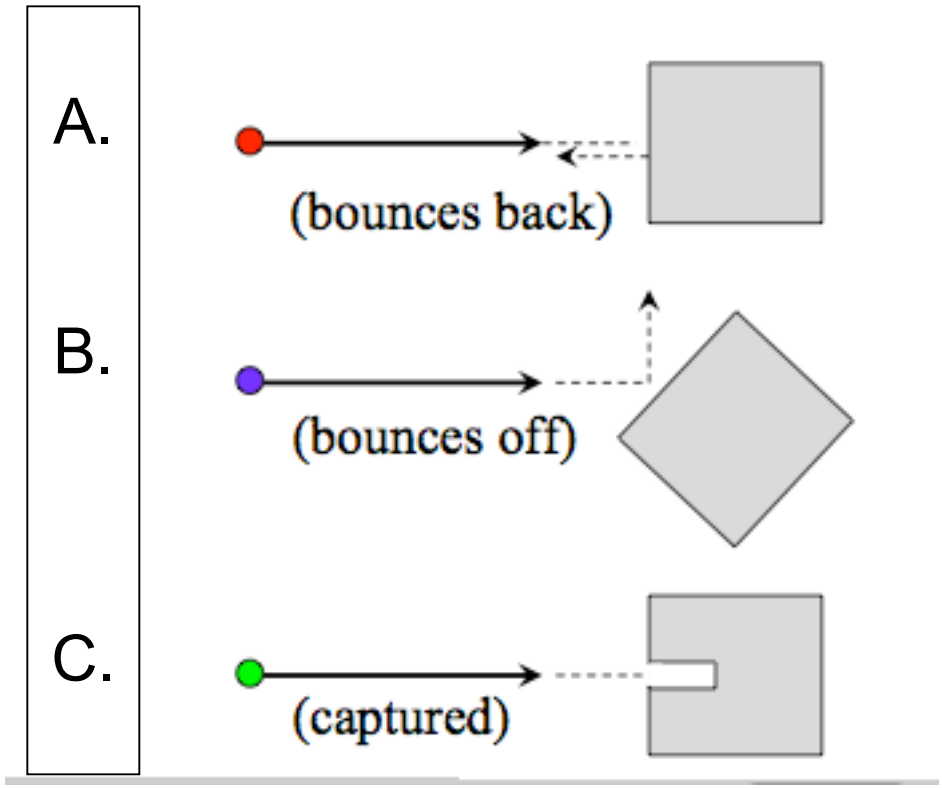
A 5000-kg missile, flying with a speed 100 m/s, exploded and separated into 5 equal parts. What is a total momentum of the parts of missile?

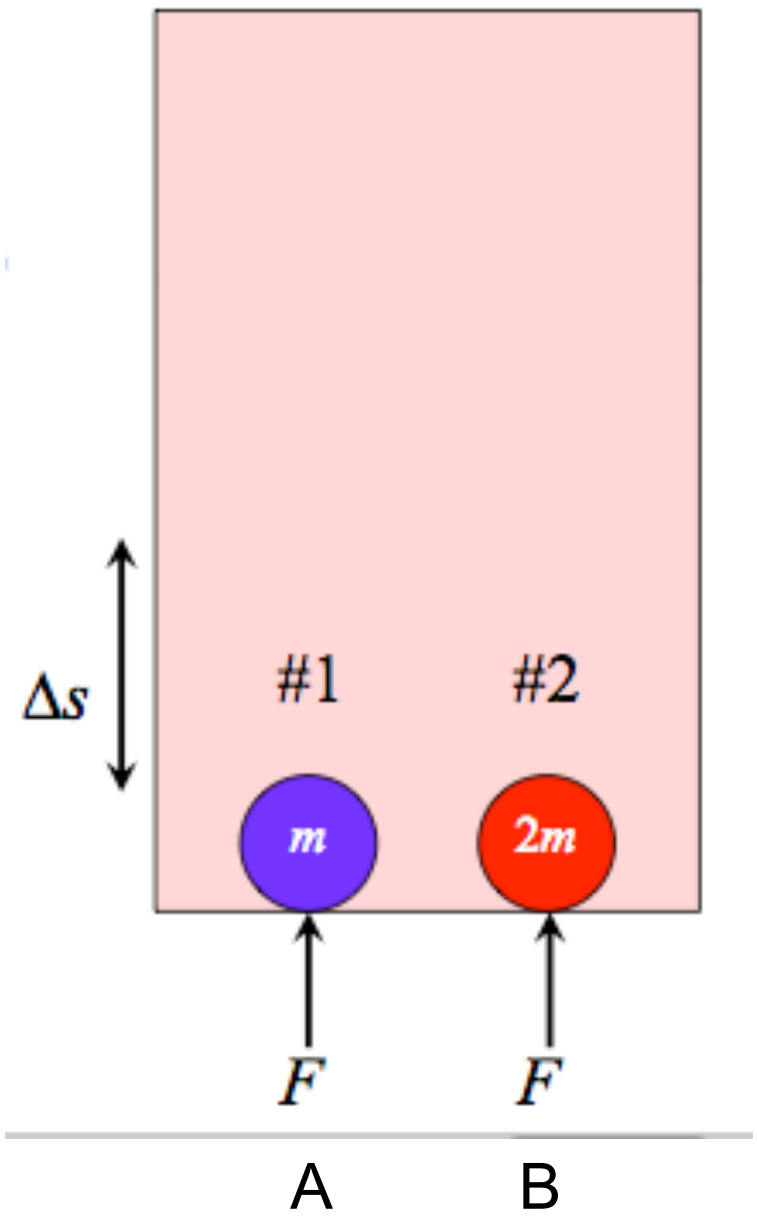
A. 500000 kg•m/s
B. 0 kg•m/s
C. 1000000 kg•m/s
D. 100000 kg•m/s

Can a fan blowing on the sail move this sailboat?

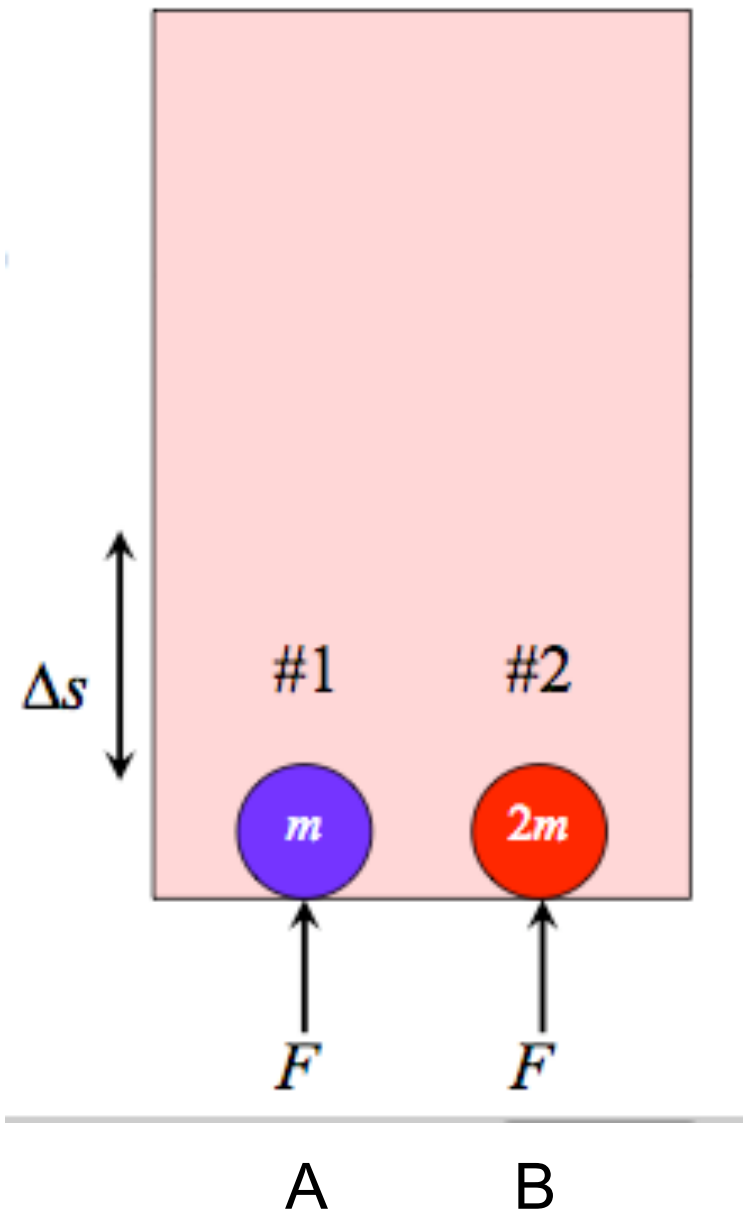
A. No because a wind force is an internal force for the boat.
B. Yes, a momentum of the wind is transferred to the sail.
C. Yes, if a fan is turned away from the sail

A ball on a table slides and hits a block. In each case, the ball hits the block going at the same speed. Which ball exerts the least force on the block?





Two pucks are pushed starting from rest on a horizontal air table.
The red puck has twice the mass of the blue.
If they are both pushed with the same force for the same distance Δ*s*, when they cross the line, which has the greater kinetic energy?



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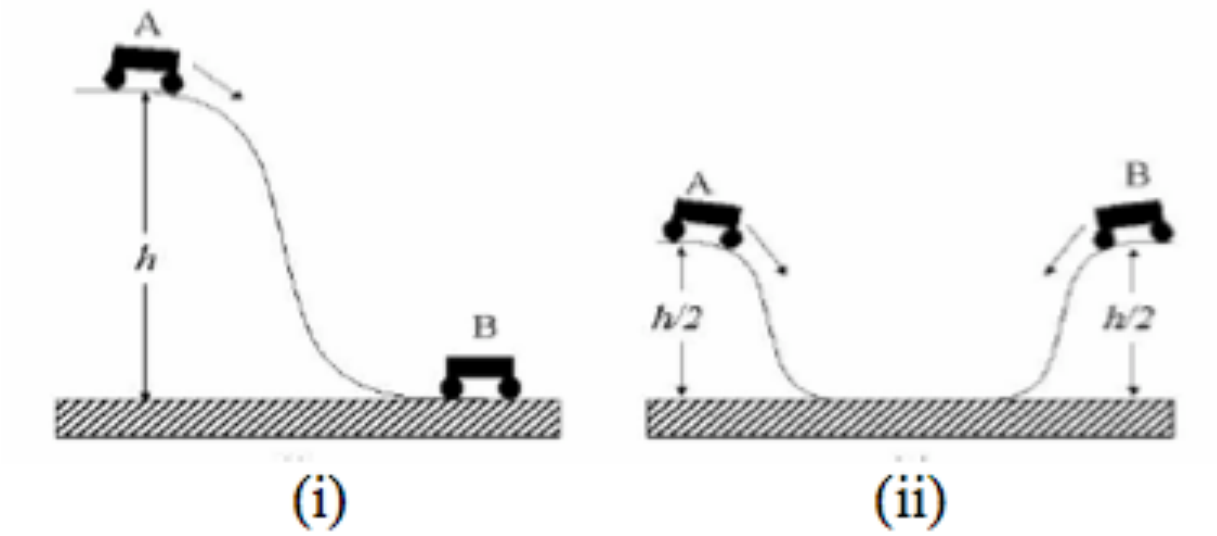
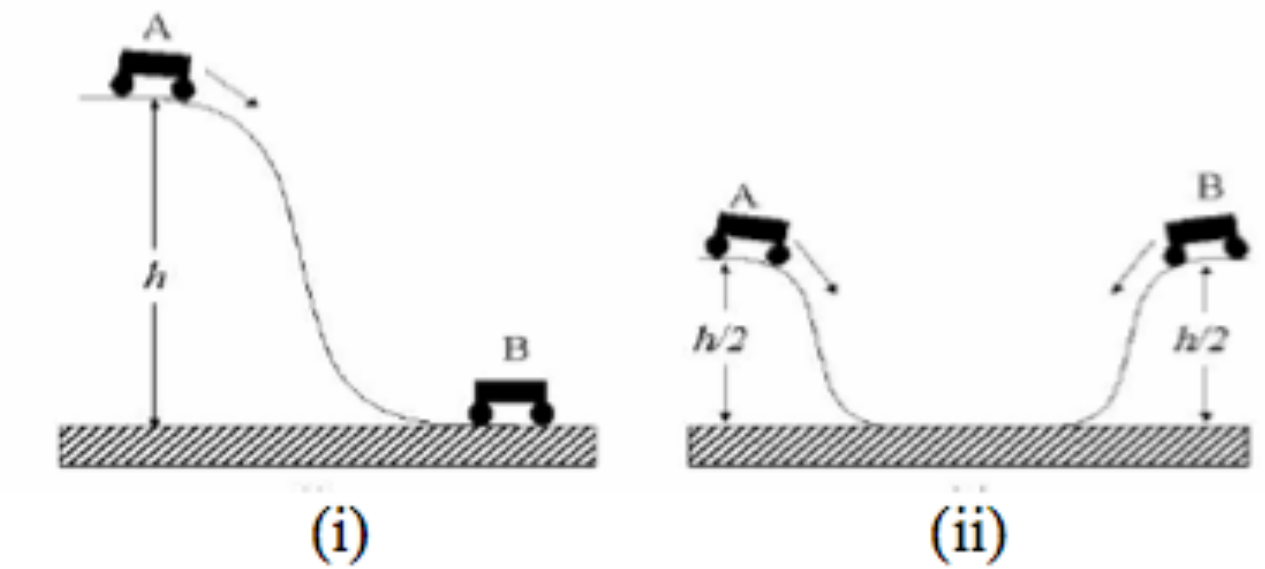


Two identical carts roll down and stick together in two different situations. Just before the carts collide

A. The momentum of the system in (ii) is zero.
B. The momentum of the system is greater in (i).
C. The momentum of the system is the same in both cases.



Two identical carts roll down and stick together in two different situations. Just after the carts collide

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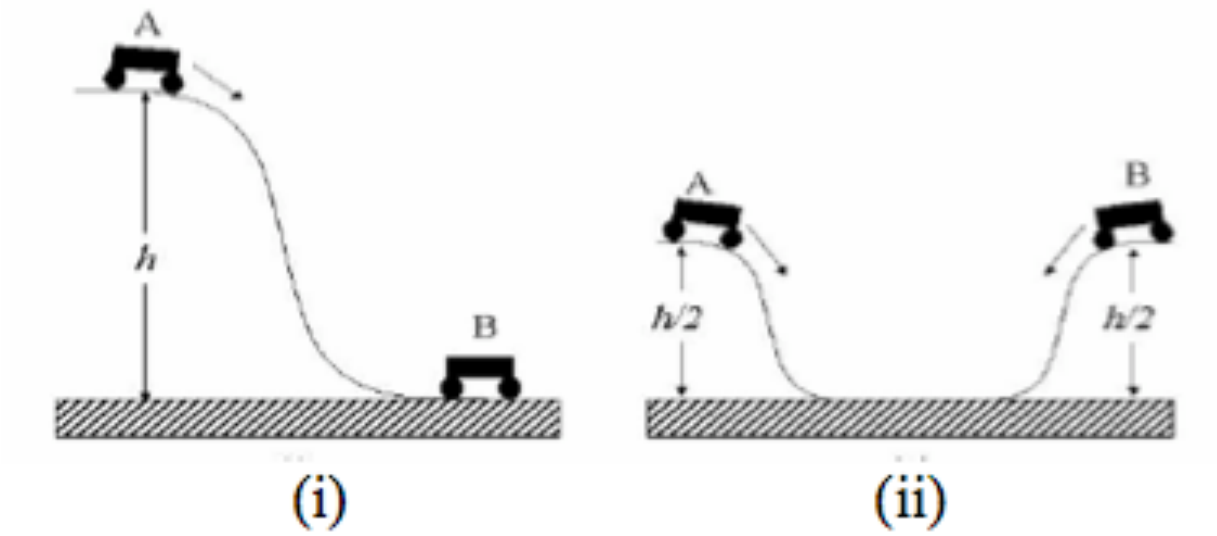
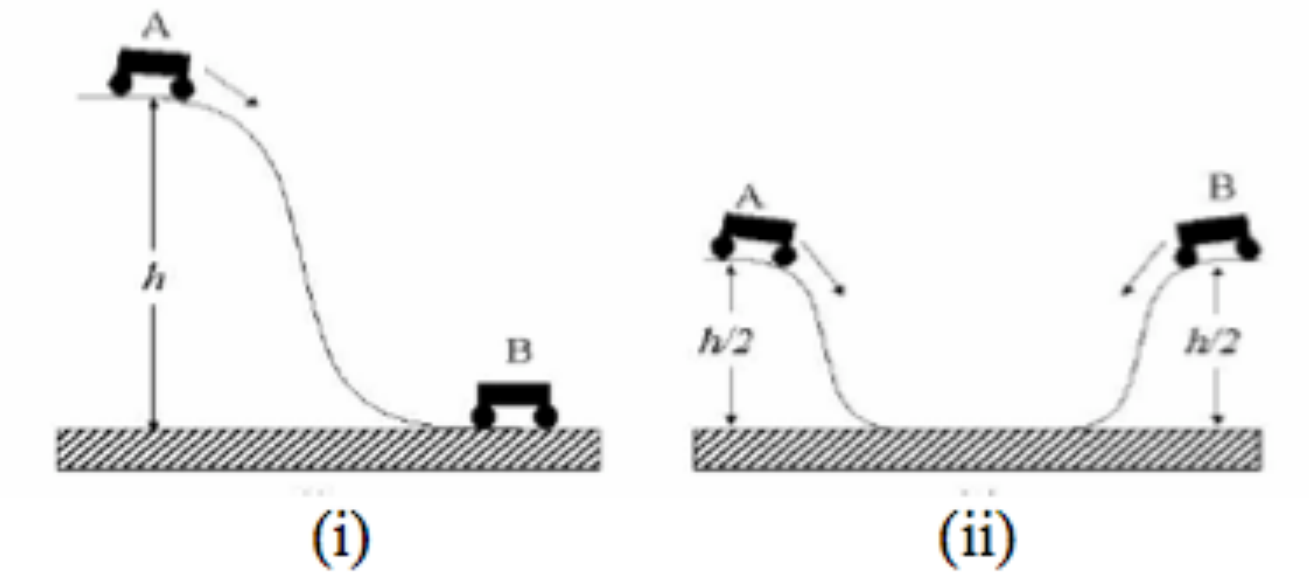


Two identical carts roll down and stick together in two different situations. Just before the carts collide

A. Kinetic energy of the system in (ii) is zero.
B. Kinetic energy of the system in (i) is greater.
C. Kinetic energy of the system is the same in both cases.



Two identical carts roll down and stick together in two different situations. Just after the carts collide

A. Kinetic energy of the system in (ii) is zero.
B. Kinetic energy of the system in (i) is smaller.
C. Kinetic energy of the system is the same in both cases.