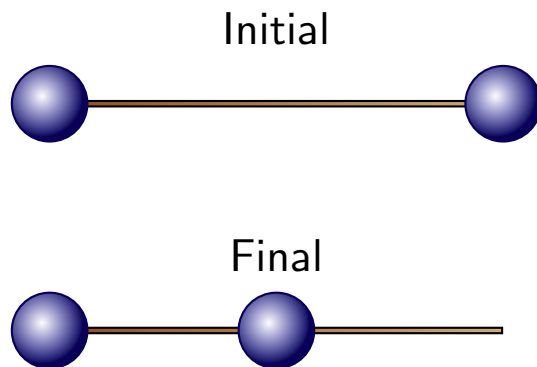


Question 1

Two identical masses are initially attached to the ends of a rigid rod which is 1.0 m long. One of the masses is moved to the midpoint of the rod.

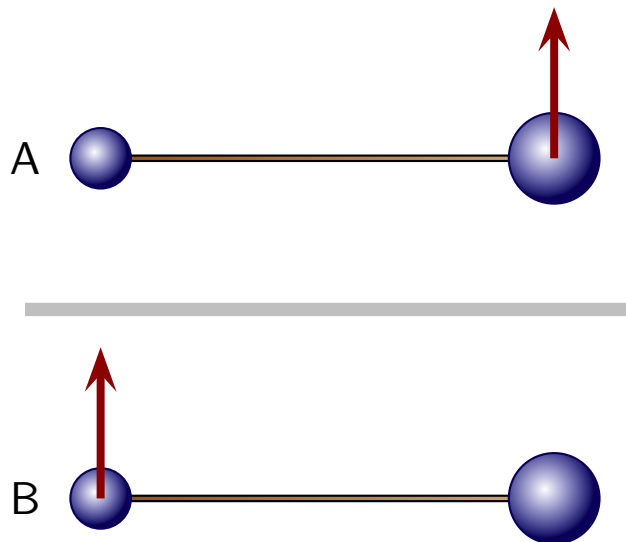


Assuming that the rod is massless, which of the following is true?

1. The c.o.m. did not shift.
2. The c.o.m. shifted 0.50 m left.
3. The c.o.m. shifted 0.50 m right.
4. The c.o.m. shifted 0.25 m left.
5. The c.o.m. shifted 0.25 m right.

Question 2

Two identical barbells have anti-symmetrical arrangements of masses (the connecting rod is negligible). In each case the mass of the barbell on the left is smaller than that on the right. Identical forces are applied as illustrated.

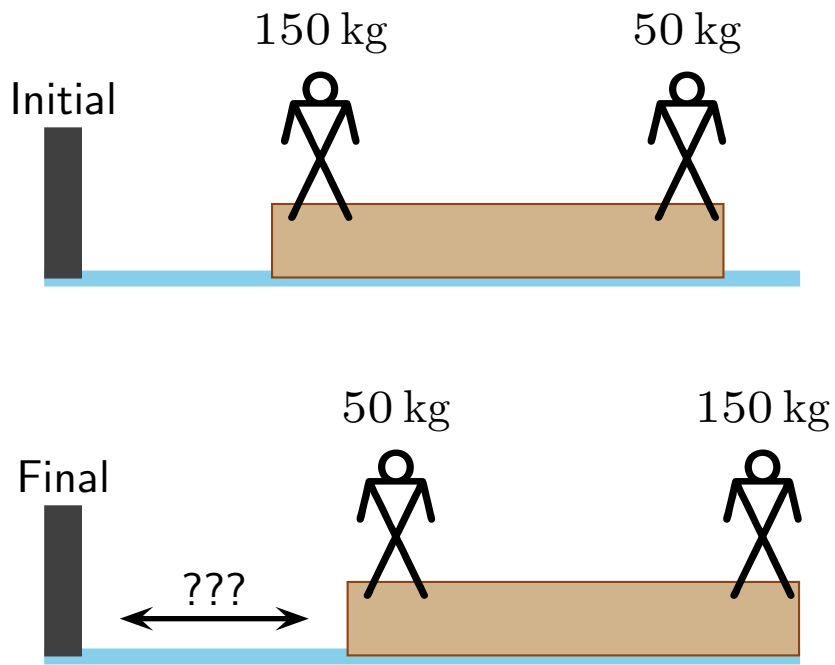


How do the accelerations of the centers of mass compare?

1. Same for both.
2. Same magnitude for both but different directions.
3. Larger for A.
4. Larger for B.

Question 3

Two people stand on opposite ends of a raft on a still lake. They walk and exchange ends. Air resistance and friction are negligible and the shore is indicated on the left.



Which of the following is true?

1. The raft shifts away from the shore.
2. The raft shifts toward the shore.
3. The raft does not shift.