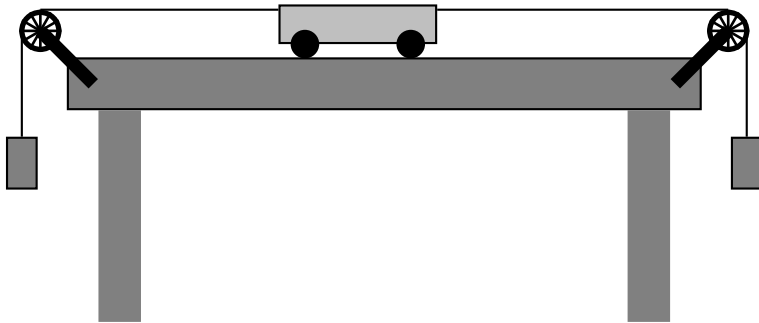


Question 1

A cart can slide back and forth along a frictionless track. Strings are attached to the cart and masses are suspended from them. For a while the cart is observed to move to the right with constant speed. Ignore air resistance.

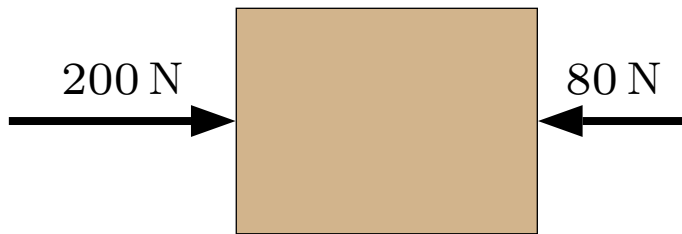


Which of the following is true while the cart moves right with constant speed?

1. The string on the right pulls with smaller force than the string on the left.
2. The string on the right pulls with larger force than the string on the left.
3. The strings each pull with exactly the same force.
4. More than one of the above could be correct.

Question 2

A block, with mass 40 kg , is initially at rest on a horizontal frictionless surface. Then two people constantly push on it in opposite directions with forces as indicated.

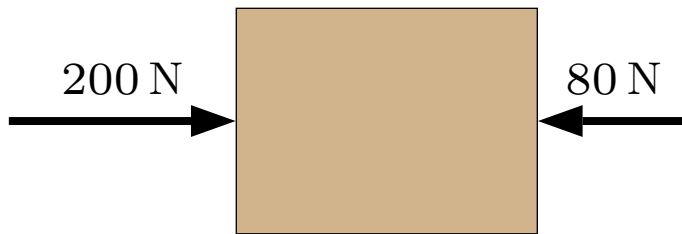


Which of the following is true during the entire period while the forces above are applied?

1. The block stays at rest.
2. The block always moves at a constant speed.
3. The block first speeds up and then reaches a constant speed.
4. The block constantly speeds up.

Question 3

A block, with mass 40 kg , is initially at rest on a horizontal frictionless surface. Then two people constantly push on it in opposite directions with forces as indicated.

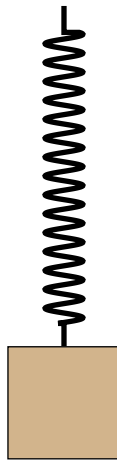


Which of the following is true about the block's speed while the forces above are applied?

1. 3 m/s always.
2. 0 m/s after 1 s ; 3 m/s after 2 s .
3. 3 m/s after 1 s ; 3 m/s after 2 s .
4. 3 m/s after 1 s ; 6 m/s after 2 s .

Question 4

A block is suspended from a spring. The block is at rest.

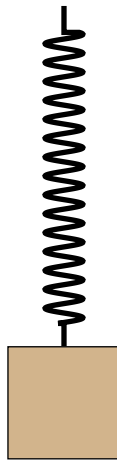


Which of the following is true?

1. The force exerted by the spring is larger than the force exerted by gravity.
2. The force exerted by the spring is smaller than the force exerted by gravity.
3. The force exerted by the spring is the same as the force exerted by gravity.

Question 5

A block is suspended from a spring. The block moves straight up with constant speed.



Which of the following is true?

1. The force exerted by the spring is larger than the force exerted by gravity.
2. The force exerted by the spring is smaller than the force exerted by gravity.
3. The force exerted by the spring is the same as the force exerted by gravity.