

cq6-1

1. CJ6 4.CQ.002. [310994] A bird feeder of large mass is hung from a tree limb, as the drawing shows. A cord attached to the bottom of the feeder has been left dangling free. Curiosity gets the best of a child, who pulls on the dangling cord in an attempt to see what's in the feeder. The dangling cord is cut from the same source as the cord attached to the limb.



Is the cord between the feeder and the limb more likely to snap with a slow continuous pull or a sudden downward pull?

- a sudden downward pull
- both have same effect on the cord
- slow continuous pull

Give your reasoning.

2. CJ6 4.CQ.003. [311075] The net external force acting on an object is zero. Is it possible for the object to be traveling with a velocity that is not zero?

- yes
- no
- not enough information to decide

If your answer is yes, state whether any conditions must be placed on the magnitude and direction of the velocity. If your answer is no, provide a reason for your answer.

3. CJ6 4.CQ.004. [310959] Is a net force being applied to an object when the object is moving downward under the following conditions?

(a) with a constant acceleration of 9.80 m/s^2

- yes
- no
- not enough information to decide

Explain.

(b) with a constant velocity of 9.80 m/s

- yes
- no
- not enough information to decide

Explain.

4. CJ6 4.CQ.005. [310982] Newton's second law indicates that when a net force acts on an object, it must accelerate. Does this mean that when two or more forces are applied to an object simultaneously, it must accelerate?

- yes
- no
- not enough information to decide

Explain.

5. CJ6 4.CQ.006. [310945] A father and his seven-year-old daughter are facing each other on ice skates. With their hands, they push off against one another.

(a) Compare the magnitudes of the pushing forces that they experience.

- father experiences a larger pushing force
- daughter experiences a larger pushing force
- both father and daughter experience pushing forces of equal magnitude

Account for your answer.

(b) Which one, if either, experiences the larger acceleration?

- father experiences a larger acceleration
- daughter experiences a larger acceleration
- both father and daughter experience acceleration of equal magnitude

Account for your answer.
