

cq6-3

1. CJ6 5.CQ.002. [310960] Consider two people, one on the earth's surface at the equator and the other at the north pole. Which has the larger centripetal acceleration?

- person at the north pole
- both have the same centripetal acceleration
- person on the earth's equator

Explain.

2. CJ6 5.CQ.006. [310984] Other things being equal, would it be easier to drive at high speed around an unbanked horizontal curve on the moon than to drive around the same curve on the earth?

- yes
- no
- driving around an unbanked horizontal curve on the moon would be the same as driving around the same curve on the earth

Explain.

3. CJ6 5.CQ.008. [311022] What is the chance of a light car safely rounding an unbanked curve on an icy road as compared to that of a heavy car? Assume that both cars have the same speed and are equipped with identical tires.

- better
- worse
- the same

Account for your answer.

4. CJ6 5.CQ.013. [311060] Would a change in the earth's mass affect the following? In each case, give your reasoning.

(a) the banking of airplanes as they turn

- yes
- no

(b) the banking of roadbeds

- yes
- no

(c) the speeds with which satellites are put into circular orbits

- yes
- no

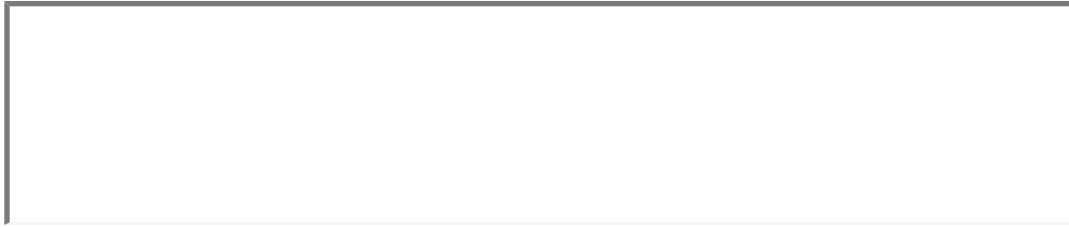
(d) the performance of the loop-the-loop motorcycle stunt

- yes
- no

5. CJ6 5.CQ.014. [311003] A stone is tied to a string and whirled around in a circle at a constant speed. Is the string more likely to break when the circle is horizontal or when it is vertical?

- vertical
- equal likelihood whether the circle is horizontal or vertical
- horizontal

Account for your answer, assuming the constant speed is the same in each case.



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