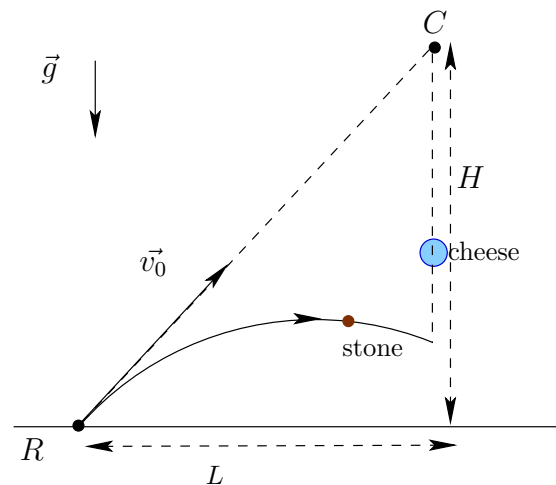# The crow and the fox

(Problem)

A few days after the events narrated in the famous fable[1], the crow and the fox meet again. Having learned from its mistakes, the crow is determined not to be fooled again by the fox's flattery. The fox, however, is set on getting a second piece of cheese. This time , it chooses a more direct method and throws a stone at the crow to scare it. It works beyond expectations: as soon as the stone is thrown, the crow drops the cheese. test The crow is perched on a tree of height H; the fox is a distance L from the base of the tree. The stone's initial speed is v_0.

   a) Show that the stone and the cheese will collide and compute the time at which the collision happens. Does that result depend on g? Explain why.

   b) What's the minimal speed v_0 such that the collision happens above ground?

   c) Check that your result's units are coherent. Choose relevant limiting cases and check that when the solution tends to those limiting cases, the result as expected.

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[1]See *The crow and the fox* by Jean de la Fontaine

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