6-5)

A student design for a crash barrier (like those seen at exit ramps) is meant to slow to a stop a 1700 kg vehicle traveling at 20 m/s with a deceleration no larger than 5 a_g.   The design comprises a giant spring.

a) What spring constant should this spring possess?
b) In what distance will the spring stop the vehicle? Ignore friction between the tires and the road, that is, it should work even on icy roads.
c) What major drawback does this design have?