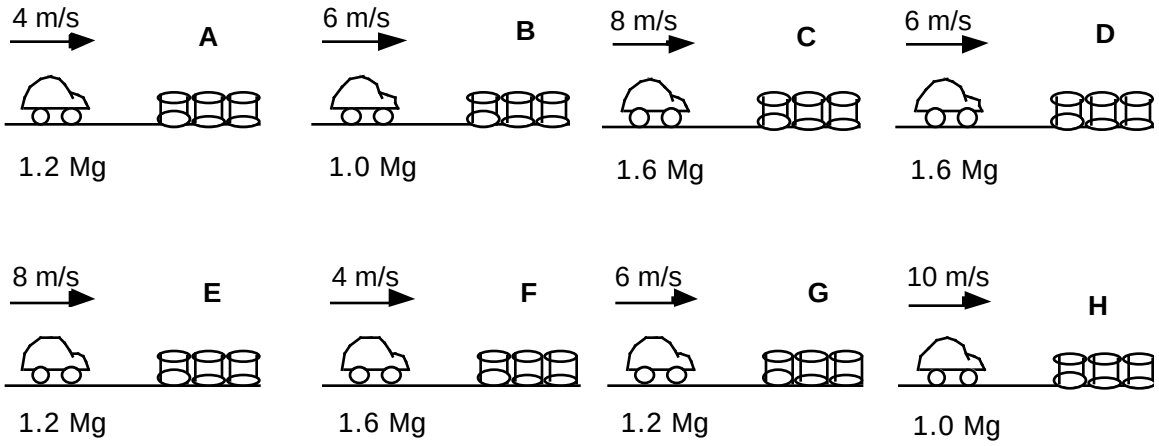
Cars and Barriers—Stopping Force in Same Distance I [57]

Given below are eight cars that are moving along horizontal roads at specified speeds. Also given are the masses of the cars. All of the cars are the same size and shape, but they are carrying loads with different masses. All of these cars are going to be stopped by plowing into barrel barriers. All of the cars are going to be stopped in the same distance.

Rank these situations from greatest to least on the basis of the strength of the forces that will be needed to stop the cars in the same distance. That is, put first the car on which the strongest force will have to be applied to stop it in *x* meters, and put last the car on which the weakest force will be applied to stop the car in the same distance.



Greatest 1____2_____3_____4_____5_____6_____7_____8_____Least

Or, all cars require the same force. _____

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed				Sure				Very Sure	
1	2	3	4	5	6	7	8	9	10

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