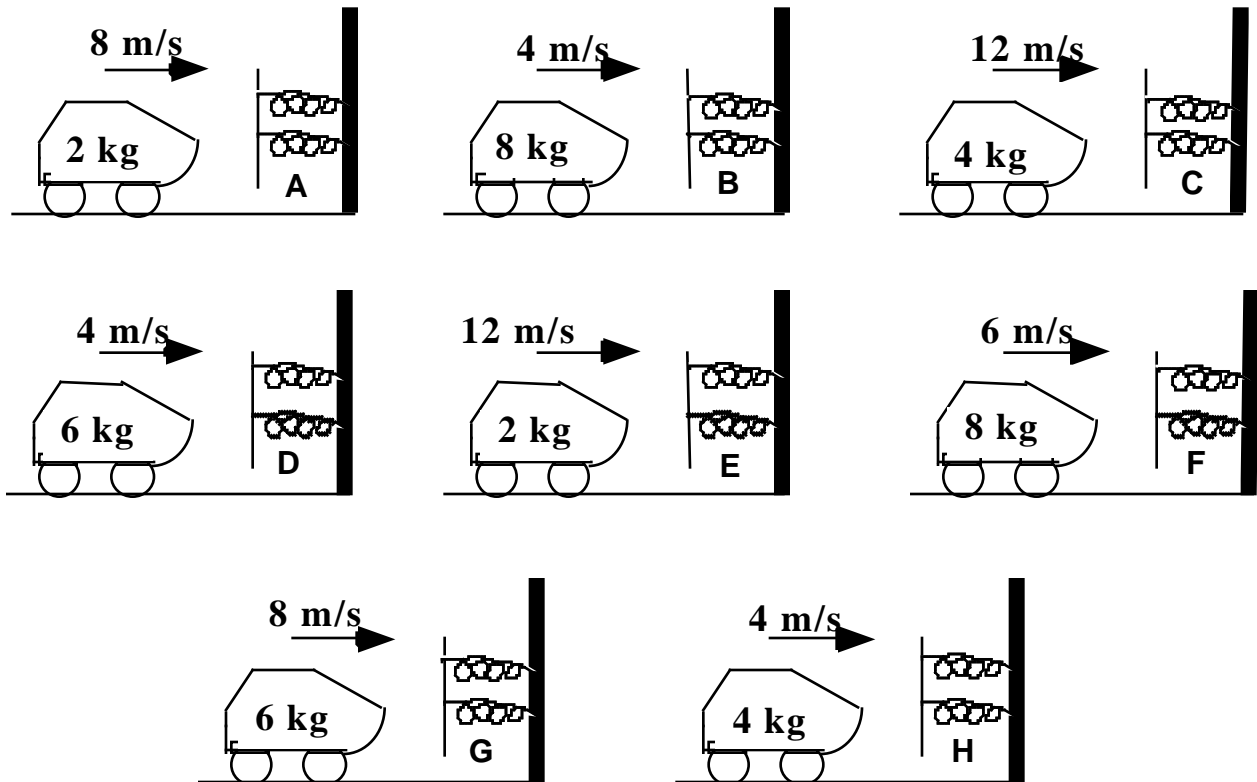


Carts and Springs—Spring Compression Time ⁷⁴

The figures below depict carts moving along a horizontal surface at the speeds specified. The masses of the carts vary; specific values are given in the figures. The carts hit, compress the springs to some maximum amount, and then rebound. All of the spring systems are identical, exerting the same force on the carts, and the carts all hit the springs exactly the same way. The carts are not self-propelled, so they compress the springs for some maximum amount of time before stopping.

Rank the situations in order from the greatest time of compression to the least time of compression. That is, put first the cart that takes the longest time to reach maximum compression, and put last the cart that takes the shortest time.



Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ Least

Or, all carts will stop in the same amount of time. _____

Please carefully explain your reasoning.

How sure were you of your ranking?

Basically Guessed

Sure

Very Sure

1 2 3 4 5 6 7 8 9 10

⁷⁴ D. Maloney