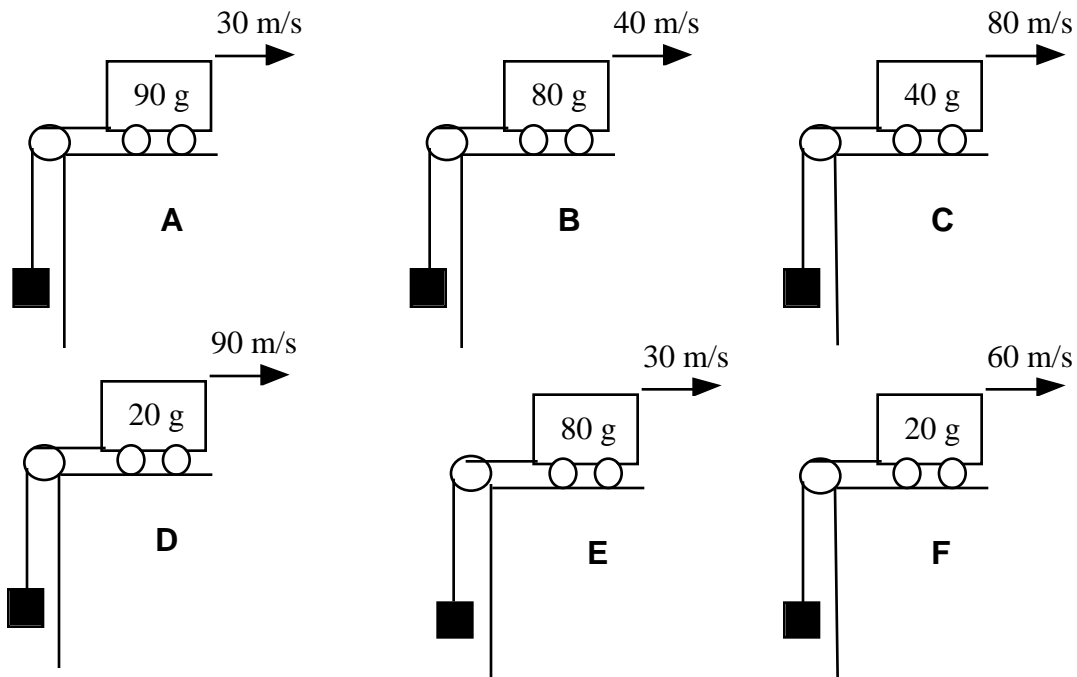


## Carts Moving Along Horizontal Surface—Slowing Down <sup>16</sup>

The six figures below show carts that are moving along horizontal surfaces at various speeds. The carts are the same size and shape but carry different loads so their masses differ. All of the carts have a string attached, which passes over a pulley and is tied to a metal block that is hanging free. All of the metal blocks are identical. As the carts move to the right they pull the blocks up toward the horizontal surface, which is the top of the table.

Rank these situations, from greatest to least, on the basis of which cart is slowing down most quickly. That is, put first the situation where the cart is slowing down the quickest, and put last the situation where the cart is slowing down at the slowest rate.



Greatest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ Least

Or, all of these carts are slowing down at the same rate. \_\_\_\_\_

Or, the carts are not slowing down. \_\_\_\_\_

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

<sup>16</sup> D. Maloney