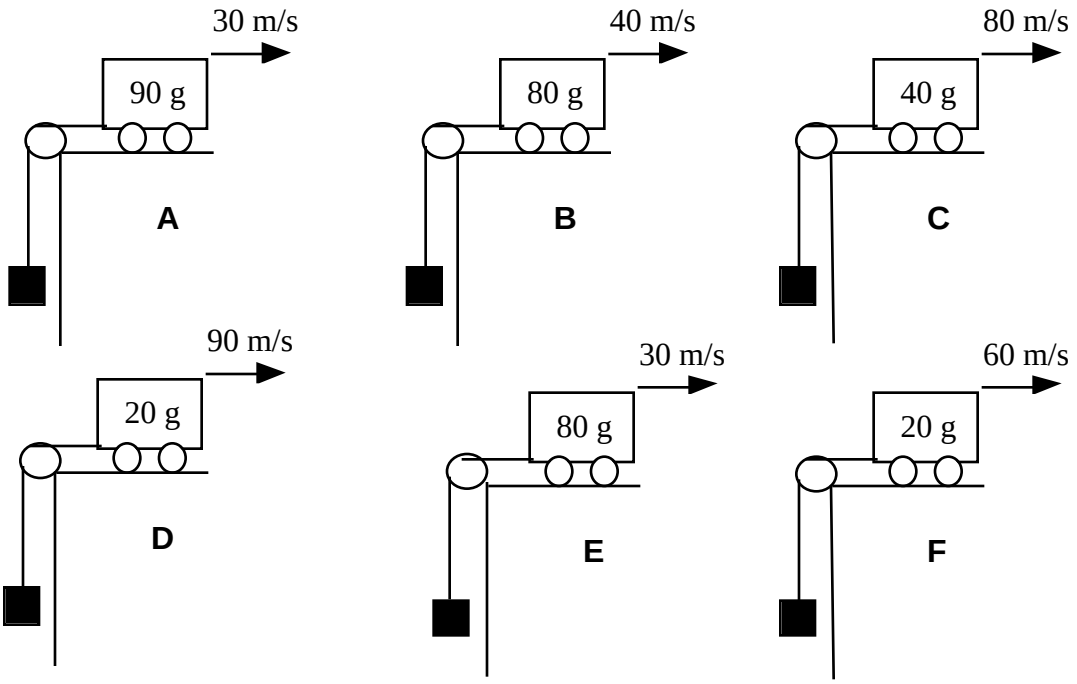
Carts Moving Along Horizontal Surface—Acceleration [15]

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 will 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 the magnitude of the acceleration of the carts. That is, put first the situation where the cart has the greatest acceleration, and put last the situation where the cart has the smallest acceleration.



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

Or, all of these carts have the same magnitude acceleration. _____

Or, there is no acceleration in any of these carts. _____

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

[15] D. Maloney