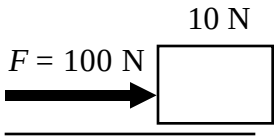
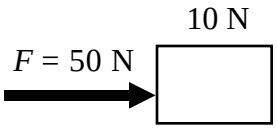
Pushing Box with Friction—Change in Kinetic Energy [73]

Various similar boxes are being pushed for 10 m across a floor by a horizontal force as shown below. The weights of the boxes and the applied horizontal force for each case are given in the indicated figures. The frictional force is 20% of the weight of the box (g = 10 N/kg).

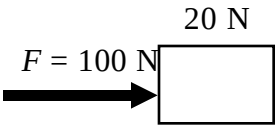
Rank the change in kinetic energy for each box from the greatest change in kinetic energy to the least change in kinetic energy. All boxes have an initial velocity of +10 m/s (+ direction is to the right and - to the left, with –4 < -2).



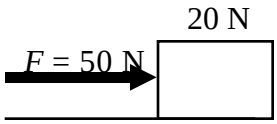
A



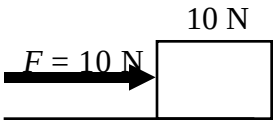
B



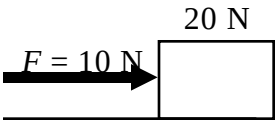
C



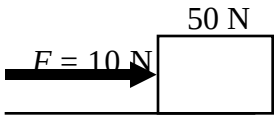
D



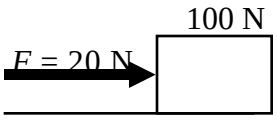
E



F



G



H

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

Or, all changes in kinetic energy are the same._____

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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