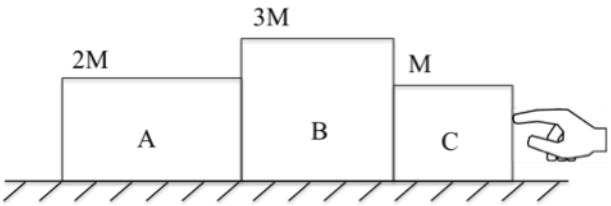
Paper HW: Chapter 2 (Due Sept. 25th)

Blocks A, B, and C are being pushed across a frictionless table by a hand that exerts a constant horizontal force. Block A has mass 2*M*, block B has mass 3*M*, and block C has mass *M*.



a) Draw a systems schema that represents all the objects in this interaction.

b) Draw separate free-body diagrams for each of the three blocks. Identify the Newton's 3rd Law pairs and explain why you drew the length of each arrow the way you did.

c) Draw vectors that represent the net force on each block. Explain how you knew to draw the net force vectors as you did.

d) Suppose the mass of block B were doubled, and the hand pushes with the same force as before.

   i. Would the change in velocity of block A be higher, lower, or the same? Explain.

   ii. Would the net force on block A increase, decrease, or remain the same? Explain.

Note: The free-body diagrams are a very important part of this question. This should be reflected in the time you spend on each part.

Adapted from *Tutorials in Introductory Physics*