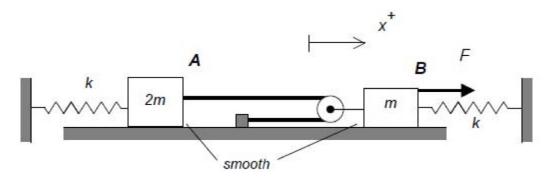
Homework H6.I

Given: Blocks A and B (having masses of m and 2m, respectively) are connected by a cable-pulley system as shown below. Two springs, each of stiffness k, are attached between blocks A and B and ground, as shown below. A horizontal force F is applied to B. The mass of the pulley is negligible, and the cable remains taut during all motion. Let x describe the position of B, and let x = 0 correspond to the state at which the springs are unstretched.

Find: For this problem:

- (a) Draw a free body diagram for each block; and
- (b) Derive the differential equation of motion for the system in terms of the coordinate x.



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