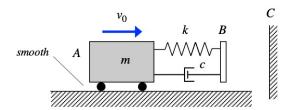
Homework H6.F

Given: A block of mass m is attached to a spring of stiffness k and a dashpot with a damping coefficient c, with the opposite ends of the spring and dashpot joined to connector B, where the mass of B can be considered to be negligible. A is initially traveling to the right with a speed of v_0 when it strikes a stationary wall at C. B immediately sticks to C after impact. Let x represent the motion of A after B has stuck to the wall, with x being measured positively to the right.

Find: For this problem:

- (a) Derive the dynamical equation of motion (EOM) of the system in terms of the coordinate x for motion occurring after B sticks to C;
- (b) Determine the undamped natural frequency ω_n , the damping ratio ζ and the damped natural frequency ω_d for the system; and,
- (c) Determine the maximum compression of the spring after B impacts and sticks to C.



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