

Collar Problem

Problem Statement

The system shown is at rest when a constant 150 N force is applied to the collar B. Neglecting the effect of friction, determine (a) time at which the velocity of the collar B will be 1.5 m/s to the left (b) Corresponding tension in the cable.

Input

Mass of the collar ----- kg

Mass of the hanging weight ----- kg

Applied force to the collar ----- N

Control Buttons

"RUN" button starts the animation.
"STOP" button stops the animation.
"RESET" button resets the animation.

Procedure

Set the masses of the collar and hanging weight , and set the force applied to the collar.
Press reset button and then start button to start the animation.

Concepts used

Principle of Impulse and Momentum is used to solve the problem.

What to see

The graph of displacement vs. time and velocity vs. time for the collar is displayed.
What is the relationship between the velocity of the collar and the weight?