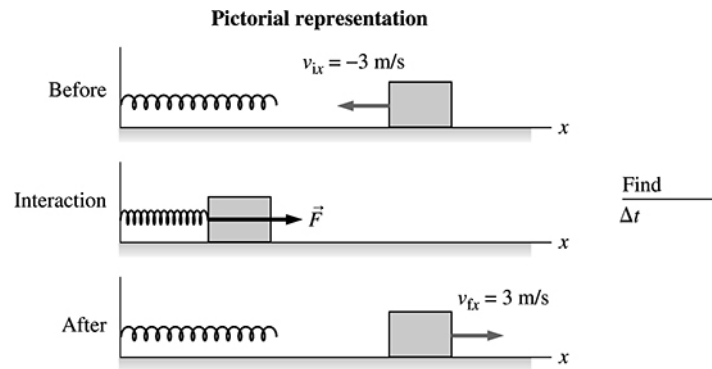


9.13. Model: Model the glider cart as a particle, and its interaction with the spring as a collision.

Visualize:



Solve: Using the impulse-momentum theorem $p_{fx} - p_{ix} = \int F dt$,

$$(0.6 \text{ kg})(3 \text{ m/s}) - (0.6 \text{ kg})(-3 \text{ m/s}) = \text{area under force curve} = \frac{1}{2}(36 \text{ N})(\Delta t) \Rightarrow \Delta t = 0.20 \text{ s}$$