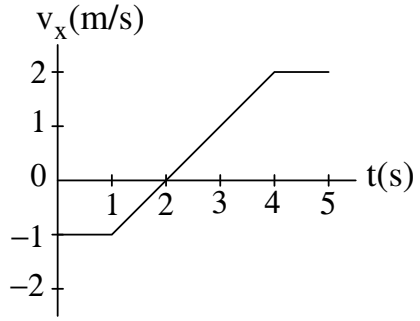
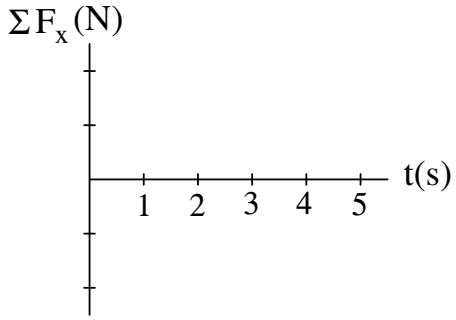
1. A 2.0 kg object, moving only in the x direction, has the velocity graph shown.



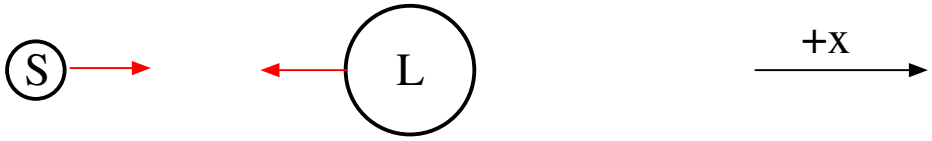


(a) What is the object's initial x momentum?_____ Final x momentum?_____

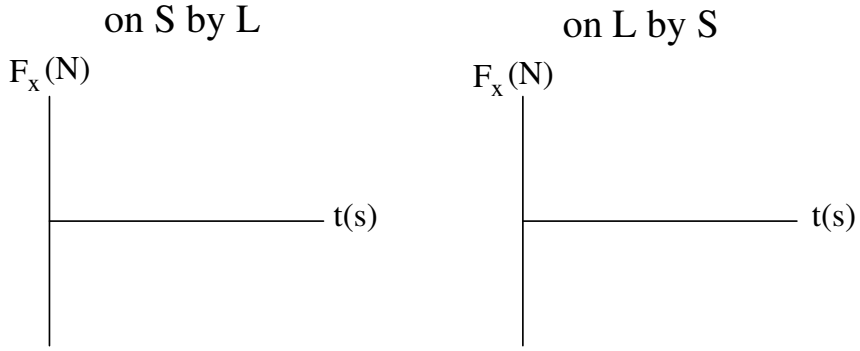
(b) What x impulse does the object experience?_____

(c) Draw the graph showing the net force on the object versus time. Check that the "area under the curve" equals the x-impulse from (b).

2. A small puck S and a larger, more massive puck L move toward one another, collide head on, and bounce apart, all on frictionless ice.



(a) Sketch force-versus-time graphs for the internal forces in this collision. Graph the x component of force in each case. Make the forces plausible.



(b) Compare the impulse experienced by S to the impulse experienced by L. Explain.

(c) Compare the momentum change of S to the momentum change of L. Explain.

(d) Compare the velocity change of S to the velocity change of L.

(e) The masses are 2 kg and 5 kg, and the initial speeds are each 30 cm/s. If the impulses are each of magnitude 1.6 N·s, find the final x-velocity of each puck.