

HW7-3 Soln)

The impulse J will be the area under the graph. Break it up into three distinct shapes: two triangles and a rectangle:

$$\frac{1}{2}(2)4 + 1(4) + \frac{1}{2}(2)4 = 12 \text{ Ns.}$$

Then, $J = \Delta p = mv_f - mv_i$

$$v_f = J/m + v_i$$

For Part b, $v_i = 0$ (starts at rest) so $v_f = 12/2 + 0 = 6 \text{ m/s.}$

For Part c, $v_i = -2$ so $v_f = 12/2 + (-2) = 4 \text{ m/s.}$