Serway/Vuille Impulse problems

1. J = 0.600 )(-90m/s) = -5.4 N●s; W = ΔKE = ½ mvf2 – ½ mvo2 =

½ (0.06)(-40)2 – ½ (0.06)(50)2 = -27 J

1. F = ΔP/t = 0.14)(-34-28)/0.25 = -34.7 N
2. 20 = 5ΔV v = 4.0 m/s
3. J = area = 8 N●s; Δv = 8/1.5 = 5.33 m/s if at rest initially

if it starts at v = -2.0 m/s 8 N●s = 1.5 vf – 1.5(-2) ; vf = 3.33 m/s

1. J = 12 N●s ; at rest Δv = 12/2 = 6 m/s; initially at +2.0 m/s vf = 8.0 m/s
2. J0-3 = 12 N●s J3-5­ = -4 N●s ; Speed at t = 3 = 12 N∙s/1.5 kg= Δv = 8.0 m/s

at t = 5 net impulse = 8 N●s = 1.5 Δv so speed = 5.33 m/s;

or -4 N●s = 1.5(vf – 8.0 m/s) = 5.33 m/s

1. 66.8 (0.185) = 12.4 N●s = ΔP; 12.4/0.350 kg = 35.4 m/s
2. J = 8 N ∙ s = 4.5 kg (vf – 2.0m/s) = 4.5 vf – 4.5 (2)

8 N ∙ s + 9 N ∙ s = 4.5 vfvf = 3.78 m/s

1. J3 = 6 N ∙ s J5 = 8 N ∙s

6 N ∙ s = 2.5 kg (vf – 5 m/s) = 2.5 vf – 12.5 vf = 7.4 m/s at t = 3

8 N ∙ s = 2.5 kg (vf = 5 m/s) = 2.5vf – 12.5 vf = 8.2 m/s