One dimensional Kinematics set 1

Solutions

1. vf2 = vo2 + 2ax; vf = ((2(1.6)(1600))1/2 = 71.6 m

vf = vo + at; t = 71.6m/s/ 1.6 m/s/s = 44.8 s

1. x = ½ at2; ½ (3.3)(7.5)2 = 92.8 m

x = xo + vot + ½ at2 = (5m/s)(7.5s) + ½ at2

x = 37.5 + 92.8 = 130.0 m

1. 88 km/hr = 24.4 m/s
2. after 2.5 s: vf = 24.4 –(8)(2.05) = 4.4 m/s

vf = vo + at; 0 = 24.4 (-8)t; t = 3.05 s

displace after brakes applied vf2 = vo2 + 2ax;

(24.4)2 / (2)(8) = 37.2 m

1. (32 - 16)/ 10 = a = 1.6 m/s/s

vav = (32 + 16)/2 = 24 m/s

vf2 = vo2 + 2ax; [(32)2 – (16)2]/(2(1.6)) = 240 m

1. vf2 = vo2 + 2ax; ((2(8.4)(75))1/2 = vo = 35.5 m/s
2. a = 0 (constant v) x = vt; 23)(0.75) = 17.3 m

vf2 = vo2 + 2ax; (23)2/(2)(6.2) = 42.7 m

total distance travelled 42.7 + 17.3 means you hit the bus