Extra Help Falling bodies solutions

1. Ball dropped from rest falls 5 m
   1. N/A
   2. – 9.8 m/s/s
   3. h = ½ at2
   4. [2\*5/9.8] ½ = 1.01 s
2. Ball dropped from 6.6 m
   1. N/A
   2. h = ½ at2
   3. [2\*6.5/9.8]1/2 t = 1.15s
   4. vf = vo + at vf = 1.15\*9.8 = 11.3 m/s
3. ball vertically thrown at 22 m/s
   1. N/A
   2. Decrease velocity at a constant rate until it stops briefly and fall toward the ground
   3. Final velocity will be = 0 at the top.
   4. Eq vf2 = vo2 + 2aΔx; 222 = 19.6 Δx; Δx = 24.7 m
   5. Eq vf = vo + at; 22/9.8 = 2.24 s
4. Vertically up from 5.0 m tower
   1. N/A
   2. Eq vf = vo + at; 15/9.8 = 1.53 s
   3. Eq vf2 = vo2 + 2aΔx; 152/19.6 = 11.4 m above throw so 16.4 m above ground.
   4. Eq h = ½ at2; [2\*16.4/9.8]1/2 = 1.80 s
   5. Eq vf = vo + at; -9.8\*1.80 = – 17.4 m/s
   6. Total time = 1.53 up + 1.80 down = 3.33 s