Homework Assignment #1
Chapter 2

(Please typewrite your homework.)

1. A snake is slithering toward you at 1.5 m/s. If you start walking when it is 5 m away, how fast must you go so that the snake will not overtake you when you have gone 100 m?

2. The brakes of a car moving at 14 m/s are applied, and the car comes to a stop in 4 s.
    (a) What was the car's acceleration?
    (b) How long would the car take to come to a stop starting from 20 m/s with the same acceleration?
    (c) How long would the car take to slow down from 20 m/s to 10 m/s with the same acceleration?

3. A ball dropped from the roof of a building takes 4 s to reach the street.
    (a) How high is the building?
    (b) What is the final speed of the ball?

4. A 12,000-kg airplane launched by a catapult from an aircraft carrier is accelerated from 0 to 200 km/h in 3 s.
    (a) How many times the acceleration due to gravity is the airplane's acceleration?
    (b) What is the average force the catapult exerts on the airplane?

5. A bull and a cow elephant, each of mass 2000 kg, attract each other gravitationally with a force of 2×10^{-5} N. How far apart are they?.