Physics Problem Set 4.5

$\Delta x = v_o t + \frac{1}{2} a t^2$

$\Delta x = v_{ave} t$ Distance equals average velocity times time

$v_f = v_o + at$ or $a = (v_f - v_o)/t$

$v_f^2 = v_o^2 + 2a\Delta x$

$v_{ave} = \frac{1}{2} (v_f + v_o)$

1. A basset hound in a grocery cart staring from rest, rolls down the street gaining speed uniformly for 10 seconds, reaching a final speed of 10 m/s.

a. What was the initial speed of the basset hound?

b. What was the final speed of the basset hound?

c. What was the average speed of the basset hound?

d. What was the acceleration of the basset hound?

e. What distance did the basset hound travel?

2. Sam the basset hound rolls across the grocery aisle with an initial (starting) speed of 5 m/s and slows down to stop after 10 seconds.
   a. What was Sam's initial speed?

   b. What was Sam's final speed?

   c. What is the time in this problem?

   d. What was Sam's average speed?

   e. How far did Sam roll before stopping?

   f. What was Sam's acceleration?

3. Sam the basset hound climbs in his jet powered grocery cart and accelerates, from rest, at a rate of 5 m/s/s, for a time of 5 seconds.

    a. What was Sam's initial (starting) speed?

    b. What was Sam's acceleration?

    c. What was the time in this problem?

    d. What was Sam's final speed?

    e. What was Sam's average speed?

    f. How far did Sam travel?