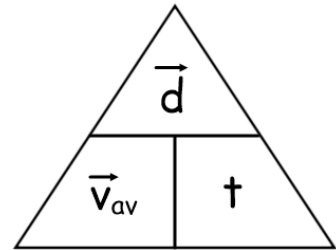


# Intro to Vectors Worksheet



1. A dog, initially at a position 2.8 m west of its owner, runs to retrieve a stick that is 12.6 m east of its owner. What displacement does the dog need in order to reach the stick?

2. The table to the right gives the position-time data of a ball that has left a bowler's hand and is rolling at a constant speed forward. Determine the displacement between that times:

Time (s)	Position (m [forward])
0.0	0.0
1.0	4.4
2.0	8.8
3.0	13.2

- a.  $t = 0.0$  s and  $t = 1.0$  s
  - b.  $t = 1.0$  s and  $t = 2.0$  s
  - c.  $t = 1.0$  s and  $t = 3.0$  s
3. While running on his hands, an athlete sprinted 50.0 m [fwd] in a record 16.9 s. Determine the average velocity for this feat.
  4. At 1:00 P.M., a car, traveling at a constant velocity of 94 km/h toward the west, is 17 km to the west of the school. Where will it be at 3:30 P.M.?
  5. Suppose the car from question #4 started 17 km east of your school at the same time, moving in the same direction at the same velocity.
    - a. Where would it be at 3:30 P.M.?
    - b. When would it be at your school?
  6. Write an equation for each of the following
    - a. Displacement in terms of average velocity and time interval
    - b. Time interval in terms of average velocity and displacement
  7. At the snail racing championship in England, the winner moved at an average velocity of 2.4 mm/s [fwd] for 140 s. Determine the winning snail's displacement during this time interval.
  8. The women's record for the top windsurfing speed is 20.8 m/s. Assuming that this speed remains constant, how long would it take the record holder to move 178 m [fwd]?