

Module 01 - Lesson 3

Average Velocity

Question 1: Wayde van Niekerk of South Africa set a world record at the 2016 Rio Olympics in the 400-m dash with a time of 43.03 s. What was his average speed?

Question 2: A raccoon runs from points A to B to C in 3.0 s (see Fig. 1). Find the raccoon's average velocity and average speed over this 3-second interval.

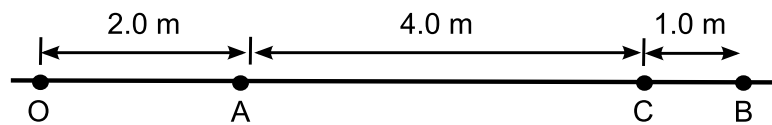


FIG. 1: A raccoon's motion diagram.

Problem: An object's position is given by $x(t) = ct - dt^2$ where t is time in seconds and $c = 1.5$ m/s and $d = 0.5$ m/s². Calculate the object's average velocity between (a) $t_1 = 1.00$ s to $t_2 = 1.50$ s, (b) $t_2 = 1.50$ s to $t_3 = 2.50$ s, and (c) $t_4 = 1.95$ s to $t_5 = 2.05$ s.