Answer on Question #46143, Physics, Mechanics | Kinematics | Dynamics

A football coach starts at the 35 yard line and walks to the 15 yard line. He turns around and walks to the 40 yard line. He turns around again and walks back to the 0 yard line. He turns around once more and walks back to the 25 yard line, thus completing his 10 minutes of pacing. What is the average velocity?

Solution:

The average speed during the course of a motion is often computed using the following formula:

$$\text{Average Speed} = \frac{\text{Distance Traveled}}{\text{Time of Travel}}$$

$$v_{av} = \frac{d_1 + d_2 + d_3 + d_4}{t}$$

In our case,

$d_1 = 35 - 15 = 20 \text{ yards} = 20 \cdot 3 = 60 \text{ ft},$

$d_2 = 40 - 15 = 25 \text{ yards} = 75 \text{ ft},$

$d_3 = 40 - 0 = 40 \text{ yards} = 120 \text{ ft},$

$d_4 = 25 - 0 = 25 \text{ yards} = 75 \text{ ft},$

$t = 10 \text{ min} = 600 \text{ s}$

Thus,

$$v_{av} = \frac{60 + 75 + 120 + 75}{600} = 0.55 \text{ ft/s}$$

Answer: $v_{av} = \mathbf{0.55 \text{ ft/s}}$