

Answer on Question 71569, Physics, Mechanics, Relativity

Question:

Jane swims the length of a 40 meter pool in 10 seconds and immediately swims back to the starting position in another 15 seconds. What was her average velocity?

Solution:

The average velocity of an object is defined as the displacement per unit time:

$$v_{avg} = \frac{\text{displacement}}{\text{time taken}}.$$

Because Jane returns to the starting position, the displacement is equal to zero and we get:

$$v_{avg} = \frac{\text{displacement}}{\text{time taken}} = \frac{0 \text{ m}}{25 \text{ s}} = 0 \frac{\text{m}}{\text{s}}.$$

Answer:

$$v_{avg} = 0 \text{ m/s}.$$

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