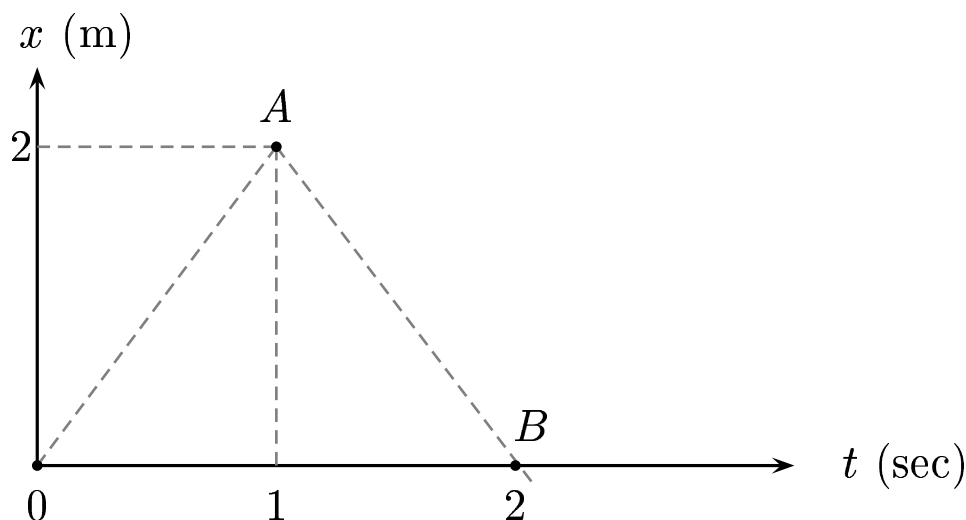


Consider the displacement curve OAB and the motion from O to A to B .



Determine the average velocity and the average speed (in units of m/s) from $t = 0$ s to $t = 2$ s.

- A) The average velocity is 2 m/s and the average speed is 0 m/s.
- B) The average velocity is 0 m/s and the average speed is 2 m/s.
- C) The average velocity is 2 m/s and the average speed is 2 m/s.
- D) The average velocity is -2 m/s and the average speed is 2 m/s.

The average velocity is given by

$$\vec{v} = \frac{\text{displacement}}{\text{time}} = \frac{x_B - x_O}{t_B - t_O} = 0 \text{ m/s}.$$

The average speed s is given by

$$s = \frac{\text{distance}}{\text{time}} = \frac{|x_A - x_O| + |x_B - x_A|}{t_B - t_O} = 2 \text{ m/s}.$$

Answer **B**.