Consider three position curves between time points $A$ and $B$.

\[ \bar{v} = \frac{v_A + v_B}{2}, \]

when $a$ is constant.

Choose the correct relationship among quantities $\bar{v}_1, \bar{v}_2$, and $\bar{v}_3$.

A) $\bar{v}_1 < \bar{v}_2 < \bar{v}_3$

B) $\bar{v}_1 = \bar{v}_2 = \bar{v}_3$

C) $\bar{v}_1 > \bar{v}_2 > \bar{v}_3$
The average velocity of an object is defined as follows

\[ \bar{v} = \frac{\text{displacement}}{\text{time}} = \frac{s_B - s_A}{t_B - t_A}. \]

All three curves have exactly the same change in position \( \Delta s = s_B - s_A \) in exactly the same time interval \( \Delta t = t_B - t_A \). Hence all three average velocities are equal

\[ \bar{v}_1 = \bar{v}_2 = \bar{v}_3. \]

Answer B.

02.02-01 Average velocity 2004-3-24