

ACT

A ball is thrown straight up in the air and returns to its initial position. During the time the ball is in the air, which of the following statements is true?

- A - Both average acceleration and average velocity are zero.
- B - Average acceleration is zero but average velocity is not zero.
- C - Average velocity is zero but average acceleration is not zero.
- D - Neither average acceleration nor average velocity are zero.

$$V_{ave} = \Delta Y / \Delta t = (Y_f - Y_i) / (t_f - t_i) = 0$$

$$a_{ave} = \Delta V / \Delta t = (V_f - V_i) / (t_f - t_i)$$

Not 0 since V_f and V_i are not the same!