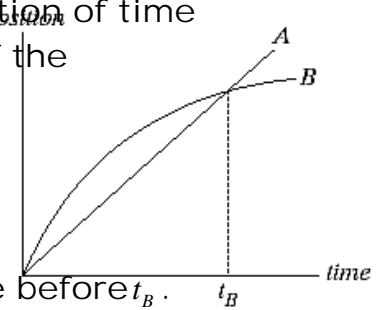1-   **Q1: The graph to the right shows position as a function of time for two trains running on parallel tracks. Which of the following statements is true?**

A. At time t_B, both trains have the same velocity.
B. Both trains speed up all the time.
C. Both trains have the same velocity at some time before t_B.
D. Somewhere on the graph, both trains have the same acceleration.

Q2: Joe Cool (JC) throws a basketball from the center of the floor of a square gymnasium that is 18 m long, 18 m wide, and 5 m high.
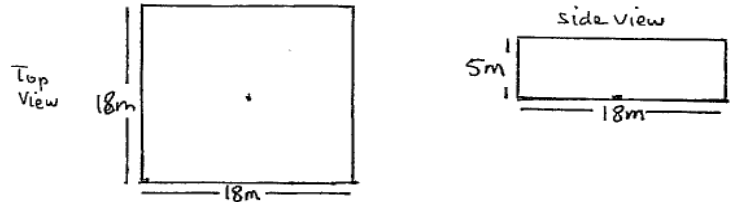
If JC shoots the ball from the floor at an initial speed of 10 m/s at a $45°$ angle to the horizontal, and if air resistance is negligible, the ball first strikes
(A) the floor.   (B) a wall.   (C) the ceiling.
(D) either a wall or the floor.   (E) either a wall or the ceiling.

Q3: The position of an object as a function of time is given by:

$$x(t) = (3 \text{ m/s2}) \, t^2 - (4 \text{ m/s}) \, t + 5 \text{ m}$$

Which of the following statements are true at t = 10 s? (Mark ALL that apply.)
(A) The object is located at x = 345 m.

(B) Its velocity is 56 m/s in the positive direction.

(C) Its initial velocity is 4 m/s in the positive direction.

(D) Its acceleration is 3 m/s^2 in the positive direction.

(E) None of these statements is true.