

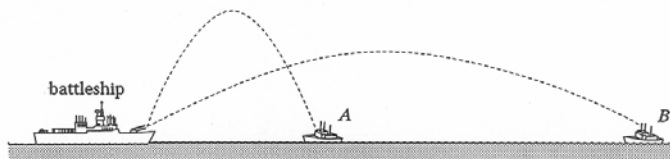
Q 3. You are throwing a ball straight up in the air. At the highest point, the ball's

1. velocity and acceleration are zero.
2. velocity is nonzero but its acceleration is zero.
3. acceleration is nonzero, but its velocity is zero.
4. velocity and acceleration are both nonzero.

Q 4. If you drop an object in the absence of air resistance, it accelerates downward at  $9.8 \text{ m/s}^2$ . If instead you throw it downward, its downward acceleration after release is

1. less than  $9.8 \text{ m/s}^2$ .
2.  $9.8 \text{ m/s}^2$ .
3. more than  $9.8 \text{ m/s}^2$ .

Q 5. A battleship simultaneously fires two shells at enemy ships. If the shells follow the parabolic trajectories shown, which ship gets hit first?



1. A
2. both at the same time
3. B
4. need more information

## Answers

Q3. 3

Q4. 2

Q5. 3\*

\*Shell A is in the air longer since its trajectory takes it higher.

Note: these are from Eric Mazur, *Peer Instruction* (Prentice Hall, 1996).