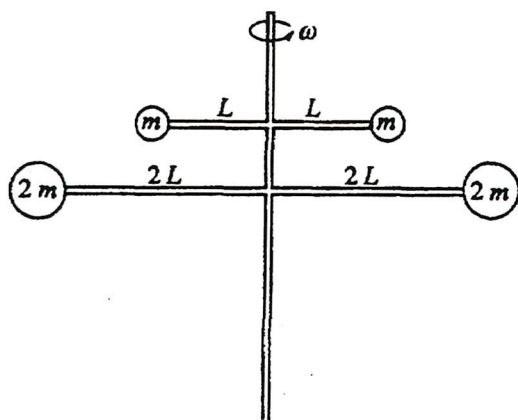


25. A spring-loaded gun can fire a projectile to a height h if it is fired straight up. If the same gun is pointed at an angle of 45° from the vertical, what maximum height can now be reached by the projectile?

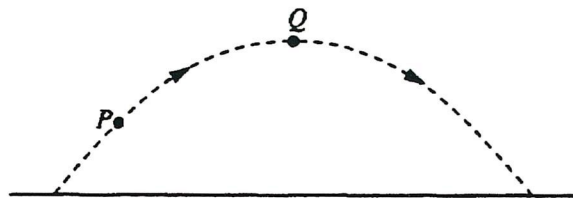
- (A) $\frac{h}{4}$
 (B) $\frac{h}{2\sqrt{2}}$
 (C) $\frac{h}{2}$
 (D) $\frac{h}{\sqrt{2}}$
 (E) h



26. The rigid body shown in the diagram above consists of a vertical support post and two horizontal cross-bars with spheres attached. The masses of the spheres and the lengths of the cross-bars are indicated in the diagram. The body rotates about a vertical axis along the support post with constant angular speed ω . If the masses of the support post and the cross-bars are negligible, what is the ratio of the angular momentum of the two upper spheres to that of the two lower spheres?

- (A) 2/1
 (B) 1/1
 (C) 1/2
 (D) 1/4
 (E) 1/8

Questions 27-28



A ball is thrown and follows a parabolic path, as shown above. Air friction is negligible. Point Q is the highest point on the path.

27. Which of the following best indicates the direction of the acceleration, if any, of the ball at point Q ?

- (A) \rightarrow
 (B) \searrow
 (C) \downarrow
 (D) \leftarrow
 (E) There is no acceleration of the ball at point Q .

28. Which of the following best indicates the direction of the net force on the ball at point P ?

- (A) \nearrow
 (B) \rightarrow
 (C) \searrow
 (D) \downarrow
 (E) \swarrow