

1. A kicker's extended leg is swung for 0.4 s in a counterclockwise direction while accelerating at 200 deg/s^2 . What is angular velocity of the leg at the instant of contact?
 - a. 80 deg/s
 - b. 1.8 rad/s
 - c. 2.1 rad/s
 - d. none of the above

2. The angular velocity of a runner's thigh changes from 3 rad/s to 2.7 rad/s in 0.5 s. What has been the average angular acceleration of the thigh?
 - a. -0.3 rad/s^2
 - b. -0.6 rad/s^2
 - c. -1.2 rad/s^2
 - d. none of the above

3. A tennis racket swung with an approximate angular velocity of $688 \text{ }^\circ/\text{s}$ strikes a motionless ball at a distance of 0.5 m from the axis of rotation. What is the linear velocity of the racket head at the point of contact with the ball?
 - a. 3 m/s
 - b. 6 m/s
 - c. 9 m/s
 - d. 12 m/s

4. The relative angle at the knee changes from 0 degrees to 85 degrees during the knee flexion phase of a squat exercise. If 10 complete squats are performed what is the total angular distance undergone at the knee?
 - a. 28.7 radians
 - b. 29.7 radians
 - c. 30.7 radians
 - d. 31.7 radians

5. A baseball is struck by a bat 46 cm from the axis of rotation when the angular velocity of the bat is 70 rad/s. If the ball is hit at a height of 1.2 m at a 45° angle, will the ball clear a 1.2 m fence that is 110 m away? (Assume that the initial velocity of the ball is the same as the linear velocity of the bat at the point at which it is struck.)
 - a. Yes
 - b. No