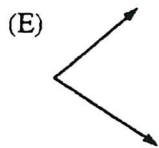
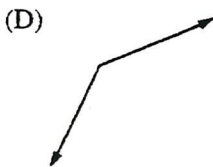


31. An object having an initial momentum that may be represented by the vector above strikes an object that is initially at rest. Which of the following sets of vectors may represent the momenta of the two objects after the collision?



Questions 32-33

A wheel with rotational inertia  $I$  is mounted on a fixed, frictionless axle. The angular speed  $\omega$  of the wheel is increased from zero to  $\omega_f$  in a time interval  $T$ .

32. What is the average net torque on the wheel during this time interval?

(A)  $\frac{\omega_f}{T}$

(B)  $\frac{\omega_f}{T^2}$

(C)  $\frac{I\omega_f^2}{T}$

(D)  $\frac{I\omega_f}{T^2}$

(E)  $\frac{I\omega_f}{T}$

33. What is the average power input to the wheel during this time interval?

(A)  $\frac{I\omega_f}{2T}$

(B)  $\frac{I\omega_f^2}{2T}$

(C)  $\frac{I\omega_f^2}{2T^2}$

(D)  $\frac{I^2\omega_f}{2T^2}$

(E)  $\frac{I^2\omega_f^2}{2T^2}$