PROBLEM 13.162

Packages in an automobile parts supply house are transported to the loading dock by pushing them along on a roller track with very little friction. At the instant shown, packages B and C are at rest and package A has a velocity of 2 m/s. Knowing that the coefficient of restitution between the packages is 0.3, determine (a) the velocity of package C after A hits B and B hits C, (b) the velocity of A after it hits B for the second time.

PROBLEM 13.169

A boy located at Point A halfway between the center O of a semicircular wall and the wall itself throws a ball at the wall in a direction forming an angle of 45° with OA. Knowing that after hitting the wall the ball rebounds in a direction parallel to OA, determine the coefficient of restitution between the ball and the wall.

PROBLEM 13.175

A 1.5-kg block B is attached to an undeformed spring of constant $k = 80 \text{ N/m}$ and is resting on a horizontal frictionless surface when it is struck by an identical block A moving at a speed of 5 m/s. Considering successively the cases when the coefficient of restitution between the two blocks is (1) $e = 1$, (2) $e = 0$, determine (a) the maximum deflection of the spring, (b) the final velocity of block A.