PROBLEM 11.41

Automobiles \( A \) and \( B \) are traveling in adjacent highway lanes and at \( t = 0 \) have the positions and speeds shown. Knowing that automobile \( A \) has a constant acceleration of 1.8 ft/s\(^2\) and that \( B \) has a constant deceleration of 1.2 ft/s\(^2\), determine (a) when and where \( A \) will overtake \( B \), (b) the speed of each automobile at that time.

PROBLEM 11.47

Slider block \( A \) moves to the left with a constant velocity of 6 m/s. Determine (a) the velocity of block \( B \), (b) the velocity of portion \( D \) of the cable, (c) the relative velocity of portion \( C \) of the cable with respect to portion \( D \).

PROBLEM 11.59

The system shown starts from rest, and each component moves with a constant acceleration. If the relative acceleration of block \( C \) with respect to collar \( B \) is 60 mm/s\(^2\) upward and the relative acceleration of block \( D \) with respect to block \( A \) is 110 mm/s\(^2\) downward, determine (a) the velocity of block \( C \) after 3 s, (b) the change in position of block \( D \) after 5 s.