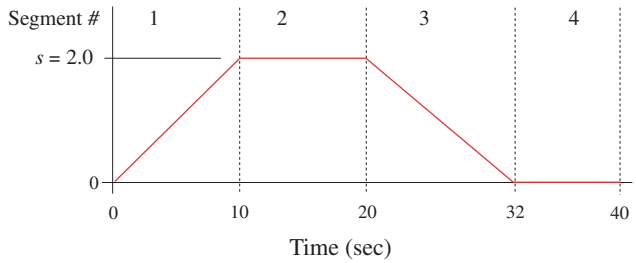

FIGURE P16-1

Timing diagram for Problems 16-6 and 16-7

16-6 A nonoffset crank-slider with crank and coupler lengths of 3.25 in and 10.875 in, respectively, is to be driven by a servo through a gear reducer. The required slider timing diagram is shown in Figure P16-1. The slider moves through the distance s in. Choose a set of servo functions from Table 16-2 (p. 786) to drive the crank with the lowest resulting vibration and calculate the resulting crank displacement for one cycle of 40-sec duration. Based on this crank input, calculate the resulting slider motion and compare the two by plotting their normalized displacements. The crank angle at $t = 0$ is 70 deg, and the crank turns clockwise to accomplish the first motion of the slider.

16-7 Repeat Problem 16-6 using the timing diagram of Figure P16-1 but with a total stroke of 75 mm. The crank length is 110 mm, the coupler length is 275 mm, and the initial crank angle is 90°.