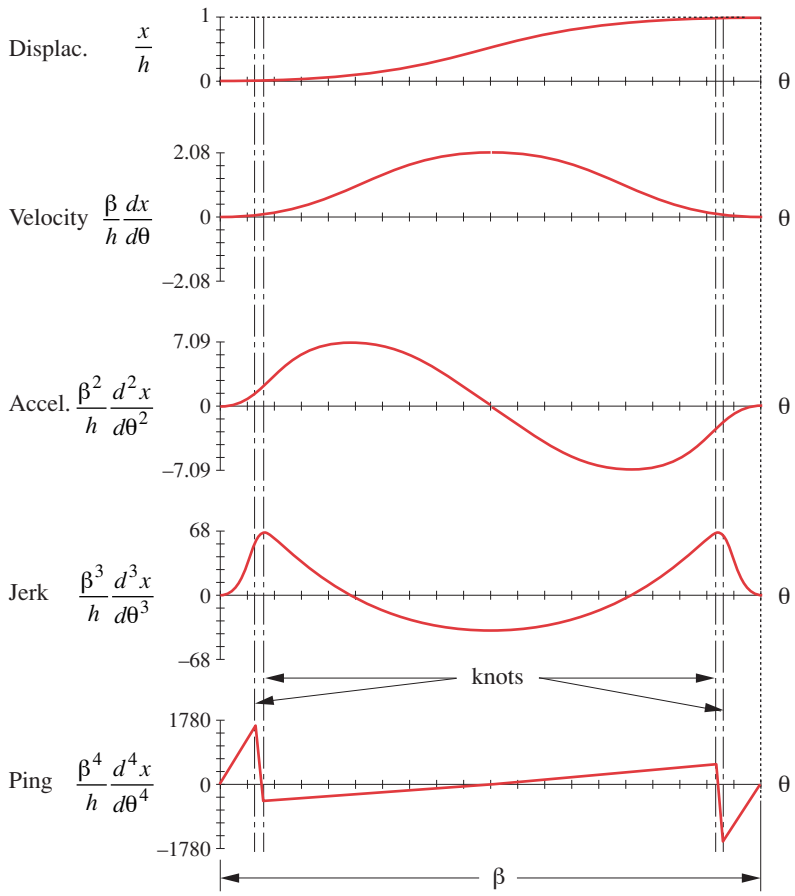

FIGURE 10-32

6th-order spline function for a splinedyne cam, knots at 7%, 8%, 92%, and 93% of period

k_1	50 lb/in at the end effector
k_2	1 000 lb/in for the linkage
Preload	30 lb
ζ_1, ζ_2	0.05, 0.10, respectively

Assumptions: The joint closure spring is at the cam follower, so a SDOF, one-mass model as shown in Figure 10-8b (p. 276) will be used.

Solution:

1 Figure 10-34 (p. 312) shows the difference between displacement, velocity, and acceleration of the follower for a non-splinedyne and a splinedyne cam with the same motion program, as calculated in program DYNACAM. The motion is RDFD, 90-90-90-90 deg, with 1-in rise and fall at 180 rpm. The 8th order B-spline of Figure 10-33 is used on both rise and fall. The one-mass dynamic model of Figure 10-8 is used with a return spring rate