

- †10-36 The cam of Example 8-8 (p. 438) drives an aligned translating roller follower. The effective mass of the follower and the mechanism that it actuates is 0.45 kg. The follower spring has a rate of 8 N/m with a preload at zero displacement of 0.3 N. Use the method of virtual work to find and plot the torque required to rotate the cam through one rise-fall segment.

EXAMPLE 8-8

Designing a Polynomial for the Symmetrical Rise-Fall Single-Dwell Case.

Problem: Redefine the CEP specification from Examples 8-5 and 8-6 (pp. 431 and 435).

rise-fall 1 in (25.4 mm) in 90° and fall 1 in (25.4 mm) in 90° over 180°
dwell at zero displacement for 180° (low dwell)
cam ω 15 rad/sec

$$s = h \left[64 \left(\frac{\theta}{\beta} \right)^3 - 192 \left(\frac{\theta}{\beta} \right)^4 + 192 \left(\frac{\theta}{\beta} \right)^5 - 64 \left(\frac{\theta}{\beta} \right)^6 \right] \quad (a)$$

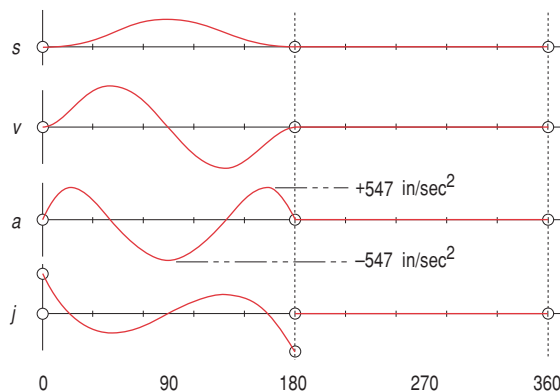


FIGURE 8-30

3-4-5-6 polynomial function for two-segment symmetrical rise-fall, single-dwell cam

† These problems are suited to solution using *Mathcad*, *Matlab*, or *TKSolver* equation solver programs.