$$s = a \cos \omega t$$

FIGURE P15-2

Problems 15-12 to 15-14

[†]15-12 The cam in Figure P15-2 is a pure eccentric with eccentricity = 20 mm and turns at 200 rpm. The mass of the follower is 1 kg. The spring has a rate of 10 N/m and a preload of 0.2 N. Find the follower force over one revolution. Assume a damping ratio of 0.10. If there is follower jump, redefine the spring rate and preload to eliminate it.

[†]15-13 Repeat Problem 15-12 using a cam with a 20-mm symmetric double harmonic rise and fall (180° rise -180° fall). See Chapter 8 for cam formulas.

[†]15-14 Repeat Problem 15-12 using a cam with a 20-mm 3-4-5-6 polynomial rise and fall (180° rise -180° fall). See Chapter 8 for cam formulas.

[†] These problems are suited to solution using *Mathcad, Matlab,* or *TKSolver* equation solver programs. In most cases, your solution can be checked with program DYNACAM.