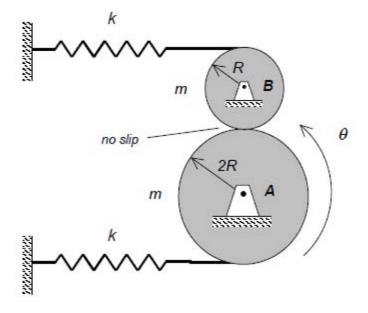
## Homework 6.B

Given: Gears A and B (having mass m, and outer radii of 2R and R, respectively) mesh without slipping. Two identical springs, each of stiffness k, are wrapped around the outer radii of the gears, as shown in the figure below. Let  $\theta$  represent the rotation of gear A, and let both springs be unstretched when  $\theta = 0$ . Treat the gears as homogeneous disks.

**Find:** Derive a single differential equation of motion for the system in terms of the coordinate  $\theta$ .



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