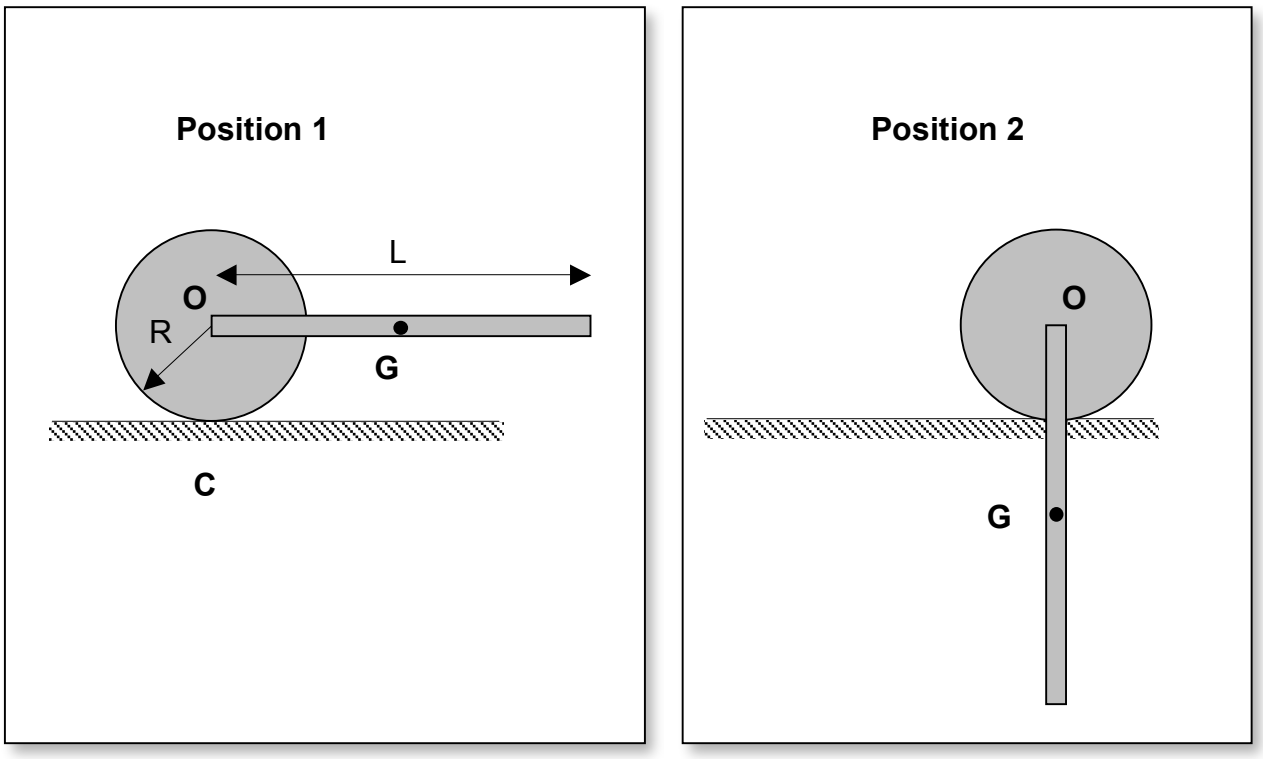
Homework H.5.P

Given: A homogeneous disk (having a mass of M and outer radius of R) is welded to a thin, homogeneous bar having a mass of m and length L with the end of the bar located at the center O of the disk. The disk is able to roll without slipping on a horizontal surface. The system is released from rest at Position 1 with the bar being horizontal at this position. On release, the system moves to the right. At Position 2 shown below the bar is vertical.

Find: Determine the speed of point G when the system is at Position 2.



Use the following parameters in your analysis: $M = 10$ kg, $m = 20$ kg, $R = 1$ m and $L = 4$ m.

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