



# LPR Cup

09.s01.e02

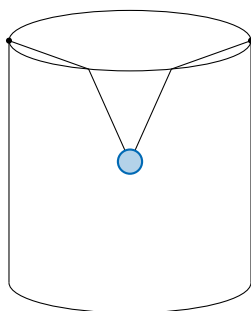


## Threads on the cylinder

To diametrically opposite points of the end of a long cylinder of radius  $R = 0,5$  m are attached two weightless and inextensible threads of the same length. The threads are connected to a point of mass  $m$  resting on the side surface of the cylinder. The thread tension force equals to  $T$ . There is no friction in the system. The cylinder axis is vertical.

Find possible values for the length of  $L$  threads in two cases:

1.  $T = mg$ ; (5 points)
2.  $T = 2mg$ . (5 points)



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First hint — 04.05.2020 14:00 (Moscow time)

Second hint — 06.05.2020 14:00 (Moscow time)

Final of the second round — 08.05.2020 22:00 (Moscow time)