

[mex103] **Gravitational potential of a homogeneous rod**

Calculate the gravitational potential of a thin homogeneous rod of length  $L$  and mass  $m$  for the case that the field point is equidistant from the two endpoints of the rod. Show that for large distances the result approaches the potential of a point mass asymptotically. Calculate also the the first correction to the point mass potential due to the nonspherical mass distribution.