

**[mex152] Gravitational potential of a homogeneous disk**

Calculate the gravitational potential of a thin homogeneous disk of radius  $R$  and mass  $m$  for the case that the field point is on the axis. Show that for large distances the result approaches the potential of a point mass asymptotically. Calculate also the first correction to the point mass potential due to the non-spherical mass distribution.

**Solution:**