

**[mex40] Discounted gravity: 50% off**

A particle of mass  $m$  moves in a circular orbit of radius  $r_0$  in a central force potential  $V(r) = -\kappa/r$ . Suddenly the value of  $\kappa$  decreases to half its original value and the particle changes its orbit as a result of the reduced attractive force. Give a detailed description of the new orbit.

**Solution:**