

5.8.8: Hollow Spherical Shell

Outside the sphere, the field and the potential are just as if all the mass were concentrated at a point in the centre. The potential, then, outside the sphere, is just $-GM/r$. *Inside* the sphere, the field is zero and therefore the potential is uniform and is equal to the potential at the surface, which is $-GM/a$. The reader should draw a graph of the potential as a function of distance from centre of the sphere. There is a discontinuity in the slope of the potential (and hence in the field) at the surface.

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