# Spherical symmetry and potential energy functions

$$-\Delta U_{\mathrm{F},1\ldots N} := \Delta W_{\mathrm{F},2\to1} + \Delta W_{\mathrm{F},1\to2} + \cdots + \Delta W_{\mathrm{F},N-1\to N}$$

- Pair of objects: One particle is fixed "at center" and the other particle is considered the moveable "test" particle
- Spherical symmetry: **Force** on test particle is **radial**, with **magnitude** that is the **same at** all locations with **same radius**
- **Same work** both along path I and along path II
- Possible to assign **potential energy** values to points (a), (b), and everywhere else that the test particle can be placed