1/5 Mass of iron sphere $m = \rho V$

$= \left(7210 \frac{kg}{m^3}\right)\left(\frac{4}{3}\pi (0.050)^3\right) = 3.78$ kg

Force of mutual attraction : $\frac{Gm^2}{d^2}$

Weight of each sphere : $\frac{Gm_e m}{r^2}$

$\frac{Gm^2}{d^2} = \frac{Gm_e m}{r^2}$, $r = d\sqrt{\frac{m_e}{m}}$

$= 0.1\sqrt{\frac{5.976 \times 10^{24}}{3.78}}$ $\frac{1}{10^3}$

$= \underline{1.258\,(10^8)\,km}$