

HW 13-3 Soln)

To finish the problem, set

$$\frac{d}{dr}(r^4 e^{-r/a_0}) = 0 \quad .$$

Then,

$$4r^3 e^{-r/a_0} + \frac{-1}{a_0} r^4 e^{-r/a_0} = 0$$

$$\left(4 - \frac{r}{a_0}\right) r^3 e^{-r/a_0} = 0 \quad .$$

Then, either $r = 0$, $r = \infty$, or $r = 4a_0$.