Chemistry H2A

Problem Set 7 -Additional problem on intermolecular interactions.

Consider the Lennard-Jones potential for the intermolecular interaction of two nonpolar atoms such as Ar:

$$V(r) = 4\varepsilon\left[\left(\frac{\sigma}{r}\right)^{12} - \left(\frac{\sigma}{r}\right)^{6}\right]$$

Where ε is a constant with units of energy and σ is a constant with units of distance. The potential function V(r) is equal to zero and a distance r = σ. Please find the distance r_{min} where V(r) is the lowest value (bottom of the well), and the value of the potential energy at that distance, $V(r_{min})$.