1. Problem V.8 in Peebles.

2. Consider the function

\[ f(r) = \frac{1}{r_0^3 + r^3} \]

with \( r_0 > 0 \) (we are interested in the limit \( r_0 \to 0 \)). This is a regularized version of the function \( 1/r^3 \). Repeat the steps leading from equ. (34.30) to (34.36) for this particular choice of \( f(r) \). Explain why it is legitimate to replace \( \psi(r) \) by \( \psi(0) \) in equ. (34.27).