1. From Jackson Equation (3.78), prove Equations (3.79) and (3.80). We require that $a_0 \neq 0$ and that the series will terminate.

2. Jackson Problem 3.6

3. Jackson Problem 3.12. Note that the complete elliptic integral of the first kind is\(^1\)

\[
K(k) = \int_0^{\pi/2} (1 - k^2 \sin^2 t)^{-1/2} dt
\]

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\(^1\)Source: *CRC Standard Mathematical Tables and Formulae*, 31st ed. §6.20.2

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\(^*\)For students at USD and SDSU, this means you must have your solutions to your Dept. secretary (or Dr. Corwin) by the close of business (4:30 PM Mountain Time) on the due date.