1) Solve problem (1), section 12.4, page 672.
2) The Fourier-Legendre series of \( f(x) \) on the interval \((-1,1)\) is

\[
f(x) = \sum_{n=0}^{\infty} c_n p_n(x).
\]

Find \( c_6 \) for the function \( f(x) = 1 \).

[Hint: \( p_0(x), p_1(x), \ldots, p_5(x) \) is given in page 263].