EX.0.5.7, Sauer

a. Find the Taylor polynomial of degree 4 for $f(x) = \ln(x)$ about the point $x = 1$.

b. Use the result of (a) to approximate $f(0.9)$ and $f(1.1)$.

c. Use the Taylor remainder to find an error formula for the Taylor polynomial. Give error bounds for each of the two approximations made in part (b). Which of the two approximations in part (b) do you expect to be closer to the correct value?

d. Use a calculator to compare the actual error in each case with your error bound from part (c).