
Linear Approximations and Differentials

Solutions should show all of your work, not just a single final answer.

- Find the linearization of the function $f(x) = \sqrt{x+4}$ at 0.
 - Use the linear approximation obtained in part (a) (no other methods) to approximate $\sqrt{5}$. Your answer based on that linearization can be given either as an exact fraction or rounded to four digits.
- Find the linearization of the function $f(x) = e^{x-1}$ at 1.
 - Use the linear approximation obtained in part (a) (no other methods) to approximate $e^{0.1}$. Round your answer to four digits.
- Find the linearization of the function $f(x) = \ln(x+1)$ at 0.
 - Use the linear approximation obtained in part (a) (no other methods) to approximate $\ln 1.05$. Round your answer to four digits.