

## Exercise 1

1. Construct a second order Taylor series expansion of the Zellner production function used in “Investing in Precision Agriculture” for the average response curve around the point  $v_1=124.90$  and  $v_2=1.0$ .
  - a. Holding  $v_2$  constant, what is the approximation of production  $v_1 = 126$ ?
  - b. What is the error of this expansion?
  - c. What is the approximation at  $v_1=125$ ?
  - d. What is the error of this expansion?
2. Using Mathematica, graph the error of the expansion over the range  $v_1$  in  $[120,130]$ .