Week 2 Assignment

Please turn in by April 16th, 2019

Consider the following three functions. The DV is x, the OF is y.

1. $y = 5 - x + 0.45x^2 - 0.08x^3 + 0.005x^4$
2. $y = e^{-\frac{1}{2}\left(\frac{x-5}{2}\right)^2}$
3. $y = -2\left(\frac{1}{x-5}\right)^2$

For each, the DV range is 0–6. Function 1) has a minimum and a saddle point. Function 2) has two minima. The minimum for Function 3) has a y-value of $-\infty$. Minimize each using two techniques: analytical (set the derivative equal to zero, and then root-find for the value of x*), and Newton's using numerical first and second derivatives. This is a 3 * 2 = 6-part exercise.