Course Narrative Essay

Requirements: Essay shall be your original work. It shall be 3-5 pages in length with normal margins (including header and footer!). Approximately half of the this should be written explanation and half should be supporting illustrations and calculations/proofs. Intermix these in whatever manor you deem with best communicate the central theme.

* Explanatory prose passages should be typed double spaced, 12pts font
* Illustration should be a mix of hand annotated screen shots from Geogebra and hand drawings.
* Calculation should be neatly handwritten.

Essay prompt:

MVT model

<https://www.geogebra.org/m/ywppr5ju>

Ln(x) by area model

<https://www.geogebra.org/m/em6c3ng2>

Multiple presentations and workday throughout the term have gradually unveiled the deeper underlying significance in the Mean Value Theorem (MVT, from limit-based secant-tangent slope convergence, to the derivative form of the theorem itself and its corollary introducing antiderivative, to the integral form as the penultimate step to the Fundamental Theorem of Calculus (FTC) and the Net Change Theorem.  We journeyed from open-end scientific speculation to narrower and narrower focus. Now it is time to sum it all up by *explaining how the two MVT's are merely two side of the same coin connected via the Fundamental Theorem of Calculus.* Observe in the Geogebra model how the secant slope value and the average function value correspond and how the x-values of the promised points within the interval [a,b] similarly correspond. Further observe in the reading of the proofs in section 5.4 how often the MVT's are referenced. Show why all this is the case by explaining what exactly is the surprising connection between slope and area, between derivatives and indefinite integrals, between the curve illustrating the secant slope and the curve illustrating the average value of a function.