Let $I = \int_0^1 x \sin(x^2)\, dx$

1. Write out L_5 without Sigma Notation.
2. Use Sigma notation to write L_5.
3. Calculate the numerical value of L_5. Without finding the exact value of I, decide whether L_5 over-estimates or under-estimates I.
4. Write L_{10} and L_{50} using sigma notation.