

Let  $\mathcal{I} = \int_0^1 x \sin(x^3) dx$

1. Calculate  $L_4$  by hand. Does this overestimate or underestimate  $\mathcal{I}$ ?
2. Calculate  $R_4$  by hand. Does this overestimate or underestimate  $\mathcal{I}$ ?
3. Write  $L_4$  and  $R_4$  using sigma notation.
4. Write  $L_{10}$  using sigma notation, but do not calculate it.  
Does this overestimate or underestimate  $\mathcal{I}$ ?
5. Write  $R_{10}$  using sigma notation, but do not calculate it.  
Does this overestimate or underestimate  $\mathcal{I}$ ?