

1. Write the following in summation notation. Do **not** find the value.
  - 1.1 The sum of the square roots of the first 100 integers
  - 1.2 The sum of the square roots of the first 200 even integers, beginning with 0
2. Let  $I = \int_0^1 x \sin(x^2) dx$ 
  - 2.1 Look at a graph on Maple, then sketch  $x \sin(x^2)$  and  $L_5$  by hand.
  - 2.2 Write out  $L_5$  without summation notation.
  - 2.3 Use summation notation to write  $L_5$ .
  - 2.4 Calculate the numerical value of  $L_5$ . Without finding the exact value of  $I$ , decide whether  $L_5$  over-estimates or under-estimates  $I$ .
  - 2.5 Write  $L_{10}$  and  $L_{50}$  using sigma notation. Do these over- or under-estimate  $I$ ?