1. Let $\mathcal{I} = \int_0^1 x \sin(x^2)\, dx$

   1.1 Use Maple to draw and to calculate L_{10} and R_{10}

   1.2 How does $\mathcal{I}$ compare to L_{10} and R_{10}?

   1.3 Find the exact value of $\mathcal{I}$ by using u-substitution. Does this agree with your previous answers?

2. Let $\mathcal{I} = \int_{-2}^0 e^{x^2}\, dx$

   2.1 Calculate L_{100} and R_{100}.

   2.2 How does $\mathcal{I}$ compare to L_{100} and R_{100}?

   2.3 How close is L_{100} to the exact value of $\mathcal{I}$?

   2.4 Approximate $\mathcal{I}$ accurate within 0.1 of its value.