You may use a calculator for these when necessary. Don’t worry...no problems on the exam will require a calculator!

For each of the following:

- How many rectangles and trapezoids are needed to guarantee accuracy within 0.00001?
- How large could the error be when 4 and 8 rectangles are used?
- How large could the error be when 4 and 8 trapezoids are used?

\[
\int_0^2 \cos(x^2) dx \quad \int_0^2 e^x dx
\]