

QUIZ 2

You need only your pencil for this quiz; no calculators or computers are needed.

1. Suppose you are using the midpoint rule to calculate an integral. If using a stepsize of $h = 10^{-3}$ gives an error $E = 2 \times 10^{-4}$, what will the error be if the stepsize is decreased to 10^{-4} ?

2. Someone gives you a program that they claim uses the trapezoid rule to compute an integral. You decide to test it on an integral whose analytic answer you know.

You observe that for a stepsize of $h = 2 \times 10^{-2}$, the error in the integral is about $E = 4 \times 10^{-3}$, and for a stepsize of $h = 10^{-2}$, the error in the integral is $E = 2 \times 10^{-3}$.

Is the program working correctly? How do you know?