Quiz 3

1. (3 points) Evaluate the integral $\int \frac{dz}{z+\sqrt{z}}$.

2. (3 points) Find a large enough n that guarantees that the trapezoidal rule approximation for $\ln(3) = \int_1^3 t^{-1}\,dt$ is accurate to within 0.01.

Quiz 3

1. (3 points) Evaluate the integral $\int \frac{dy}{\sqrt{y} - y}$.

2. (3 points) Find a large enough n that guarantees that the midpoint rule approximation for $\ln(3) = \int_1^3 t^{-1}\, dt$ is accurate to within 0.01.

Reference

Error bounds. Suppose $|f''(x)| \leq K$ for $a \leq x \leq b$. If E_T and E_M are the errors in the Trapezoidal and Midpoint Rules, then

$$|E_T| \leq \frac{K(b-a)^3}{12n^2} \qquad \text{and} \qquad |E_M| \leq \frac{K(b-a)^3}{24n^2}.$$