

MATH 130A Review: Midpoint Rule

1. Use the midpoint rule with $n = 10$ to approximate $\int_1^2 \frac{1}{x} dx$

Solution:

$$\left(\frac{1}{1.05} + \frac{1}{1.15} + \frac{1}{1.25} + \frac{1}{1.35} + \frac{1}{1.45} + \frac{1}{1.55} + \frac{1}{1.65} + \frac{1}{1.75} + \frac{1}{1.85} + \frac{1}{1.95}\right)(0.1)$$

2. Use the midpoint rule with $n = 8$ to approximate $\int_0^8 \sin \sqrt{x} dx$

Solution:

$$(\sin \sqrt{0.5} + \sin \sqrt{1.5} + \sin \sqrt{2.5} + \sin \sqrt{3.5} + \sin \sqrt{4.5} + \sin \sqrt{5.5} + \sin \sqrt{6.5} + \sin \sqrt{7.5})(1)$$