

For each problem compute the solution in seven different ways:

- (a) Find the exact solution, if possible, by evaluating symbolically.***
- (b) Find a numeric approximation by using the approximation command in the context menu.***
- (c) Find a numeric approximation by using the Right Rectangle Rule.***
- (d) Find a numeric approximation by using the Left Rectangle Rule.***
- (e) Find a numeric approximation by using the Midpoint Rule.***
- (f) Find a numeric approximation by using the Trapezoidal Rule.***
- (g) Find a numeric approximation by using Simpson's Rule.***

For parts (c)-(g), use $n=100$. Display all approximations to ten digits.

1. Find the area under the graph of f defined by

$$f(x) = \frac{\sqrt{1 + \cos x}}{x + 1} \text{ for } x \in [0, \pi].$$

2. Find the total distance traveled by a particle in ten minutes, starting at $t = 0$, which moves on a linear path when the velocity of the particle in meters per second is given by

$$v(t) = \sqrt{t} \sin \left(\sqrt[3]{t+1} \right).$$