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

$$f(x) = \frac{\sqrt{1 + \cos x}}{x + 1}$$
 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

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