

1. Let  $I = \int_0^{\pi} \sin(x^2) dx$ . Use a left sum to approximate  $I$  within 0.01 of its actual value.
2. Let  $I = \int_{-1}^2 -2 \ln(1 + x^2) dx$ . Use a right sum to approximate  $I$  within 0.01 of its actual value.
3. Let  $I = \int_{-\pi}^{\pi} e^{\sin(x)} dx$ . Use a right sum to approximate  $I$  within 0.001 of its actual value.