Name: **Tutorial time:**

1. Consider the integrals $\int_1^4 x^2\,dx$, $\int_1^4 2x\,dx$, and $\int_1^4 (x^2-2x)\,dx$

   (a) Approximate the value of each integral using 6 rectangles, and left endpoints.

   (b) Find an expression (in terms of n) for the value of each integral using n rectangles, and left endpoints.

2. Compute the derivatives of the following functions:

(a) $f(x) = \displaystyle\int_2^x \frac{2t^2}{t^3 + 4t}\, dt$

(b) $g(x) = \displaystyle\int_x^4 \sin(t^2)\, dt$

(c) $h(x) = \displaystyle\int_x^{\sin(x)} e^{t^2}\, dt$

3. Evaluate the integral $\displaystyle\int_0^1 \left(\frac{1}{1+x^2} - 2x + 5e^x\right) dx$