

Homework 41 – Approximating Area
AB Calculus – Mr. Oberle

Approximate the following areas using the method described. Draw a sketch illustrating the approximation.

1. $\int_0^{\pi/2} \cos x \, dx$, using a left-hand Riemann sum with 4 equal subdivisions.
2. $\int_2^5 (10 - 2x) \, dx$, using a right-hand Riemann sum with 6 equal subdivisions.
3. $\int_1^2 e^x \, dx$, using a midpoint Riemann sum with 4 equal subdivisions.
4. $\int_1^4 (-x^2 + 5x - 4) \, dx$, using a trapezoidal sum with 5 equal subdivisions.
5. Write out the general formula for approximating $\int_a^b f(x) \, dx$ with a left-hand Riemann sum with n subdivisions.

Answer Key: (1) 1.183 (2) 7.5 (3) 4.659 (4) 4.32