1. Sketch the following curves with $0 \leq t \leq 1$

    (a) $\gamma(t) = 1 + it$
    (b) $\gamma(t) = e^{-\pi i t}$
    (c) $\gamma(t) = e^{\pi i t}$
    (d) $\gamma(t) = 1 + it + t^2$

2. Find the integral of $f(z) = \bar{z}$ over each of the curves above.

3. Find the integral of $f(z) = e^z$ from -3 to 3 taken along a semicircle. Is this integral different from the integral taken over the line segment between the two points?

4. Given an arbitrary point $z_0 \in \mathbb{C}$, let C be a circle of radius $r > 0$ centered at z_0, oriented clockwise. Find the integral

$$\int_C (z - z_0)^n \, dz.$$

5. Solve the Book Problems #24 and #26 on page 25.