1. Consider function $f(z) = \frac{\text{Log}(z+5)}{\sin z}$.

   (a) Determine all singular point(s) of f enclosed in the circle $C_4(0)$. Are they isolated singularities?

   (b) Which kind of isolated singularity are they (removable, pole, essential)? If they are poles, determine their orders.

(c) Compute the residue of f at each of these singularities.

(d) Evaluate the integral $\int_\gamma f(z)dz$ where γ is the circle $C_4(0)$ oriented counterclockwise.

2. Compute $\int_\gamma \frac{z+1}{(z-\frac{\pi}{2})^2 \sin z}\,dz$ where γ is the circle $C_2(0)$ oriented counterclockwise.

3. Compute $\int_\gamma z^2 \sin(\frac{1}{z})dz$ where γ is the boundary of square with vertices at $\pm 1 \pm i$ negatively oriented.