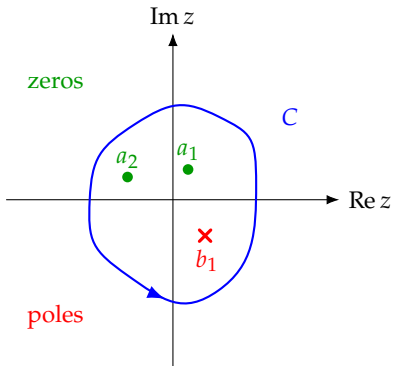
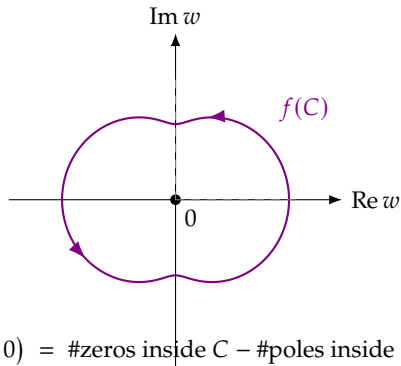


z -plane



$w = f(z)$ -plane



$$\text{wind}(f(C), 0) = \# \text{zeros inside } C - \# \text{poles inside } C = 1$$

$$\oint_C \frac{f'(z)}{f(z)} dz = 2\pi i \text{wind}(f(C), 0) = 2\pi i (\# \text{zeros} - \# \text{poles}).$$