Lec 17

Cauchy's (Integral) Theorem

If $f(z)$ is analytic in a simple connected domain D,

then for every simple closed path C in D

$$\oint_C f(z)\,dz = 0$$

This is what we expect

→ as $f(z)$ is analytic in D

→ we can integrate using method 1

→ to get $F(\text{end point}) - F(\text{START POINT})$

(where $F'(z) = f(z)$)

→ If the END POINT = START POINT

$$F(\text{end point}) - F(\text{START POINT}) = 0.$$