

Pre-Class Homework 23

Due: 6/3 23:59 (Monday)

Watch the following video clips and answer to the questions below.

Video Clips:

1. Green's Theorem. (until 44:20)
2. Complex Analysis: Integrating complex functions.(27:00 to end)

Questions:

1. For a complex-valued function f , we have

$$\begin{aligned}\int_{\partial\Omega} f(z) dz &= \int_{\partial\Omega} (u + iv)(dx + i dy) \\ &= \int_{\partial\Omega} (u dx - v dy) + i \int_{\partial\Omega} (v dx + u dy).\end{aligned}$$

To show that this integral is 0 if f is analytic, what do we need to use? (State the name of the theorem and the name of the equations we need to use.)

2. What is rubber sheet geometry? (Write down in one sentence without too much detail.)
3. What did you find difficult or confusing about the video clips? If nothing was difficult or confusing, tell us what you found most interesting. Please be as specific as possible.

Submit your answers here: <http://goo.gl/xzzkTn>