MATH 3401/3901 Lecture 1

* $e^{i\pi} = -1$.

* $\int_0^\infty \frac{\sin x}{x}\,dx = \pi/2$.

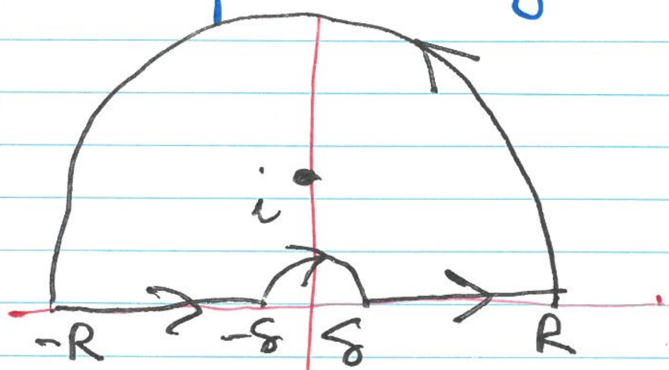
recall $\int_0^1 \frac{dx}{x}$ $\left(= \lim_{\varepsilon \to 0} \int_\varepsilon^1 \frac{dx}{x} \right)$

diverges (p-test, $p \geq 1$), &

$\int_1^\infty \frac{dx}{x} = \lim_{M \to \infty} \int_1^M \frac{dx}{x}$ also diverges (p test, $p \leq 1$).

In fact, the integral converges. ☆ Suggestion: do it yourself.

Can evaluate the integral using complex analysis methods: contour integration.



* fluid flow: