# Worksheet # 8

MATH 3160 – Complex Variables
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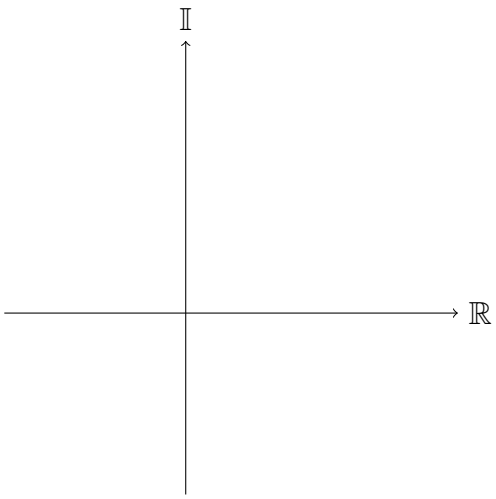
## Problem 1

A contour $C$ is parametrized by $\gamma(t) = e^{i(\pi - t)} \quad (0 \leq t \leq \pi)$. Draw the contour $C$, carefully indicating its starting point and ending point.

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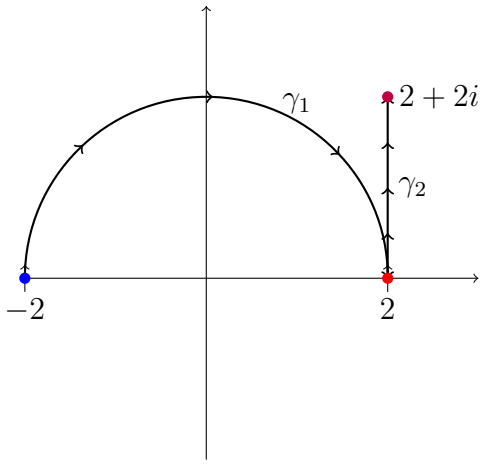
## Problem 2

Write down the parametrization of the following contour:

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Starting from the blue point above, we move in a circular path along the arc, landing us at the red point. The following is the parametrization of that arc:

$$\gamma_1(t): \ [0,1] \to 2e^{-i\pi(t+1)} = 2e^{-i(\pi t)}e^{-i\pi} \quad 0 \leq t \leq 1$$

We start gamma at $\pi$ by including the factor of $e^{-i\pi}$. Then as $t$ sweeps from 0 to 1, we end at $e^{-i2\pi}$, effectively rotating the semicircular path on the bottom of the circle around the origin. Then for $\gamma_2$ we will then do the following:

$$\gamma_2 : [1,2] \to 2 + 2i(t-1) \quad 1 \leq t \leq 2$$

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## Problem 3