1) Let $\mathcal{C}$ be the contour that consists of a square with corners $2, 2i, -2, \text{ and } -2i$. Find the integral below and show your work. Seriously, show your work:

- Answer = 2 points.
- Illustration of $\mathcal{C} = 1$ point.
- Illustration of other relevant stuff on your graph = 3 points
- Calculation of integrals = 2 points
- Stating any theorems you use = 2 points

\[ \int_{\mathcal{C}} \left( \frac{1}{z - 1} + \frac{1}{z + 1} \right) dz \]