MATH 202 Complex Analysis
Homework 2
Due date: 10 December 2021 Friday Class Time

Show your work in reasonable detail. It is important that you explain your solution in a convincing way. I can but will not do mind reading!

1) Evaluate the integral $\displaystyle\int_0^\infty \left(\frac{1}{x} - \frac{1}{\sinh x}\right)\frac{dx}{x}$.

2) Evaluate the integral $\displaystyle\int_0^\infty \frac{\cos ax - \cos bx}{x^2}\, dx$, where $a, b \geq 0$.

3) Evaluate the integral $\displaystyle\int_0^\infty \frac{\sin^2 x}{x^2}\, dx$.

4) Evaluate the integral $\displaystyle\int_0^\infty \sin x^2\, dx$.