MATH 2230A - HW 11 (Last)
Due Date: 9 Dec 2020 (Wed), 23:59 **(Final Exam is on 10 Dec)**
(HW on Blackboard)

Problems: P264-265: 2, 4, 9; P273: 3, 5, 8, 12; P282: 1, 2; P287: 1, 2, 3, 4; P293-294: 1, 2, 6, 8.
(17 Questions in total)

Textbook: Brown JW, Churchill RV(2014). Complex Variables and Applications, nineth edition, McGraw-Hill Education

Except the last 4 Questions, the remaining 13 questions concern about deriving special integration formulae using the Residue Theorem. They are rather computational(and of course you should show your understanding on the theory behind your computations).

The last 4 questions are about the important Argument Principle and Rouche's Theorem, which are about counting zeros (resp. and poles) for holomorphic (resp. meromorphic) functions. These lay the theoretical foundation for geometry of holomorphic functions, for example, one can use these to prove the Open Mapping Theorem for holomorphic maps.

The HW Problems have been uploaded to Blackboard, which are circled in red in the related textbook section.

Please make sure you read the textbook and last 15 pages of the Lecture note for examples before doing this homework, especially for the first 13 questions.