

Explanations for Letter Grades and Points in Exam MA2106-H24; 27th November 2024

The exam consists of 100 points. The maximum of awarded points in each exercise is therefore 10 times the value indicated in the exam sheet. Below there is a detailed explanation. Points have been converted to letter grades according to the following grading scale (see <https://i.ntnu.no/wiki/-/wiki/norsk/prosentvurderingsmetoden>):

A: 89–100 points

B: 77–88 points

C: 65–76 points

D: 53–64 points

E: 41–52 points

F: 0–40 points.

The criteria for awarding points on each exercise are the following:

Exercise 1(10 points) Correct usage of both of the complex cosine and exponential: 5 points. Correct computations: 5 points.

Exercise 2(15 points) Verification of the Laplace Equation: 5 points. Correct usage of the Cauchy-Riemann Equations: 4 points. Solution to the differential equations: 5 points. Correct value of the additive constant: 1 point.

Exercise 3(10 points) Selection of the correct function: 4 points. Selection of a suitable domain/disk: 1 point. Application (with explanations) of the Cauchy Formula: 5 points.

Exercise 4a(10 points) Reminding the Cauchy Residues Theorem: 2 points. Finding the singularities: 2 points. Usage of the mentioned theorem: 3 points. Calculus of Residues (with the correct justification): 3 points.

Exercise 4b(10 points) Reminding the appropriate theorem: 2 points. Usage of the theorem: 2 points. Finding the singularities: 2 points. Calculus of Residues (with the correct justification): 3 points. Other computations/coherent results: 1 point.

Exercise 4c(10 points) Reminding the appropriate theorem: 2 points. Usage of the theorem: 4 points. Finding the singularities: 1 points. Calculus of Residues (with the correct justification): 2 points. Other computations/coherent results: 1 point.

Exercise 5(10 points) Reminding the Cauchy Estimates: 1 point. Correct usage of the estimates, in combination with the assumption: 5 points. Rigorous arguments, conclusion: 4 points.

Exercise 6(10 points) Reminding the Second Identity Principle: 1 point. Finding the right function: 2 points. Correct and justified usage of the Principle: 2 points. Correct argument to find the derivatives: 4 points. Computations/conclusion: 1 point.

Exercise 7(15 points) Correct computation (integration by parts) of b_n , and writing down the Fourier Series: 8 points. Correct justification of the Lipschitz property: 5 points. Reminding the series Solution to the PDE: 2 points.