



New Zealand Mathematical Olympiad Committee

NZMO Round One 2020 — Instructions

Submissions due date: 28th July

The **New Zealand Mathematical Olympiad** (NZMO) consists of two rounds:

Round One (the NZMO1): A take home exam (the following set of 8 problems). Solutions are to be submitted by 28th July. Participation in the NZMO1 is open to any New Zealand intermediate or secondary student.

Round Two (the NZMO2): A three hour exam in September. Participation in the NZMO2 is by invitation only. Invitations will be made based on the results of the NZMO1.

Awards for the NZMO (gold/silver/bronze/honourable mention) will be made based on the results of the NZMO2. Scores will not be announced for either round. Participants in the NZMO1 will only receive an indication of whether they have been invited to participate in the NZMO2; participants in the NZMO2 will just be told the level of their award, if any.

In addition, the results of both rounds of the NZMO will be used to select about 25 students to participate in the NZMOC training camp, to be held at the University of Auckland in January 2021. Only students who are New Zealand citizens or permanent residents, and who will still be enrolled in intermediate or high school in 2021, are eligible for NZMOC training camp selection. The training camp is the first step in the selection process to choose the team of six students to represent New Zealand at the 2021 International Mathematical Olympiad, (IMO). Only students who attend this camp are eligible for team selection.

General instructions:

- All solutions must be entirely your own work.
- You may not use a calculator, a computer or the internet (except as a reference, for e.g. definitions) to assist you in solving the problems.
- Although some problems may seem to require only a numerical answer, in order to receive full credit for the problem a complete justification must be provided. In fact, an answer alone will be worth at most 20% of the credit for a problem.
- We do not expect many, if any, perfect submissions. So, please submit all the solutions and partial solutions that you can find.
- Please address **all** queries about the problems to Dr Ross Atkins, info.nzmoc@gmail.com

Any New Zealand intermediate or secondary student can participate. Students submitting solutions must be currently enrolled in the New Zealand education system as an intermediate or secondary student. If you are uncertain about your eligibility please contact Dr Ross Atkins (info.nzmoc@gmail.com) **before** submitting solutions.

The NZMO1 submission url is: https://www.mathsolympiad.org.nz/nzmo1_submission. All your solutions and partial solutions should be submitted as a **single document** in pdf format. Please complete the submission form **carefully**, especially your contact details. If you have any difficulties with the submission form, contact Dr Ross Atkins (info.nzmoc@gmail.com).