

Student Name: \_\_\_\_\_

Please write your name on *every* page.

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## The Nine Chapters on the Mathematical Art Contest

November 19, 2022

**Time:** 1 hour and 15 minutes.

### Instructions

- Don't look at the questions until the contest begins.
- Calculators, rulers, compasses, and graph paper are allowed.
- When the contest begins, check that you have the correct contest sections in front of you. The sections you should have depend on your grade, as detailed below.
- **Write your name on every page.** Do not write anything on the contest paper other than the answers and your name. Scrap paper will be provided for any rough work.

### Information about the Questions

- You will be given 3 contest sections, depending on your year of birth:
  - If you are in grade 3 or grade 4, you will get sections A, B, and C.
  - If you are in grade 5 or grade 6, you will get sections B, C, and D.
  - If you are in grade 7 or grade 8, you will get sections C, D, and E.
  - If you are in grade 9 or grade 10, you will get sections D, E, and F.
- The sections A, B, C, D, E, and F are in increasing order of difficulty.
- Each section has 8 questions, so each student solves 24 questions in total. Each question is worth 5 points, so the maximum score is 120.
- Diagrams are drawn to help you understand the question and might not be to scale.

### Writing Down Your Answers

- Any way to express the right answer is fine (for example,  $\frac{1}{2}$  and 0.5 are both correct).
- Exact answers are required (for example, write  $\frac{1}{3}$  instead of 0.3333). Answers should be in simplest form. Don't worry about units.
- **Please put your answer on the line provided!** Do not circle, make marks, or cross out any part of the question.

### Additional Information

After the contests are marked, questions, solutions and results will be posted on the Grand River Chinese School website: [http://grandriverchineseschool.com/NCC\\_e.htm](http://grandriverchineseschool.com/NCC_e.htm)

NCC 2022 is a warm-up for math contests that should be held at school during the year. They can be found at the following websites:

<http://cemc.uwaterloo.ca/contests/contests.html>

<http://www.mathematica.ca/eng/index.htm>