

Student Name: _____

Please write your name on *every* page.

The Nine Chapters on the Mathematical Art Contest

November 18, 2023

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

NCC 2023 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>