

# The Nine Chapters on the Mathematical Art Contest (NCC) 2013

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

## Instructions

- **Do not look at the questions until you are instructed to do so.**
- **Calculators are permitted.** You are also allowed to use rulers, compasses, and graph paper. You will be given scrap paper for working.
- **At the beginning of the contest, verify that you have the correct contest sections in front of you.** The sections you should have in front of you depend on your grade, as explained below.
- **Write down your name on every page.**
- **Do not write anything on the answer sheet other than the answers and your name.** This is a fill-in-the-blank test. Use the scrap paper for your work.

## Information About the Questions

- You will be given 3 contest sections, depending on your year of birth:
  - If you were born in 2005 or 2004, you will get sections A, B, and C.
  - If you were born in 2003 or 2002, you will get sections B, C, and D.
  - If you were born in 2001 or 2000, you will get sections C, D, and E.
  - If you were born in 1999 or 1998, you will get sections D, E, and F.
- The sections A, B, C, D, E, and F are in roughly increasing order of difficulty.
- Each of the sections has 8 questions, so each student will be solving 24 questions.
- Each question is worth 5 points, so the maximum possible score is 120.
- Diagrams are not necessarily drawn to scale. They are merely intended to help you understand the question.

## Writing Down Your Answers

- If there are many ways to write the right answer, then any way is fine (for example,  $\frac{1}{2}$  and 0.5 are both valid answers).
- Exact answers are required (for example, write  $\frac{1}{3}$  instead of 0.3333 with 3's going on forever).
- Your answers should be in simplest form.
- Don't worry about units.

## Additional Information

- Questions, solutions, results, and awards will be posted on the Grand River Chinese School website once the contests are marked. The website is <http://grandriverchineseschool.com/default.aspx>
- NCC is intended to be a warm-up for math contests that should be held at your regular 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>