General Preparation Advice

1. Make sure you are comfortable with high school mathematics. Canadian Senior Mathematics Contest (CSMC) and Euclid problems use ideas from all areas of high school mathematics except for calculus and vectors. The toolkits provided in these preparation materials cover some of the major topic areas. If you need help in reviewing some high school topics, a great resource is the CEMC courseware. The Grades 9/10/11 Mathematics and Advanced Functions & Pre-Calculus courseware will be the most helpful.

   - Grades 9/10/11 - The Curriculum Maps page contains documents that provide you with a complete list of all the lessons along with the lesson goals. These documents will help you find the topic you are looking for.
   - Advanced Functions and Pre-Calculus - Use the unit headings and individual lesson descriptions to find the topic you are looking for.

2. Be prepared to write complete, clear solutions to the contest problems. This aspect becomes increasingly important in the later questions of the contests. CSMC and Euclid questions come in two types: short answer questions and full solution questions.

   - Short answer questions come with a box where you place your final answer. If you have the correct answer in the box, you will earn full marks. If you do not have the correct answer in the box, part marks will be awarded for relevant work shown. Do not spend a lot of time writing long solutions to these problems. But do make sure that the work you show is clear.
   - Full solution questions include marks for completeness, clarity and style of presentation, so take care in writing up your solution. Here are some tips to writing a solution.
     - Use words! You do not need to use full sentences, but words can make things clearer.
     - If you introduce variables, be clear about what those variables represent.
     - Organize your work. Separate your rough work from your actual solution, and consider using a separate piece of paper for rough work. Sometimes a table or headings can add clarity to your solution.
     - Justify your steps and include explanations. You do not need to explain every little detail, but your reader should be able to follow your argument.

3. Keep your eye on the time. The CSMC contest lasts 2 hours and the Euclid contest lasts 2.5 hours. Do not get bogged down on one problem. If you find yourself spending more than 5 minutes on a problem without making any progress, put a star on the problem (so you can easily find it later) and move on to the next problem.

   The Euclid contest is designed so that the questions get harder as you progress through the contest. However, difficulty is not universal. You may find some topics easier than others, so do not always assume that you will find the next question harder. Part (a) on questions 9 and 10 may be easier than question 8, as part (a) of these questions are often designed to help you understand the question or help you with the later parts of the question.

   The CSMC contest is designed so that the questions get harder as you progress through the six short answer questions in part A. The difficulty level then resets with Part B. The first full

solution question in Part B is designed to be the most straightforward, the second question is designed to be more challenging and the final question is designed to be the most challenging. Therefore, questions A6 and B3 are designed to be the most challenging questions on the contest. However, as we said above, difficulty is not universal.

4. Avoid silly mistakes. Check your work. Sometimes verifying your answers, correcting mistakes, and improving the presentation of your solution will earn you more marks than spending a lot of time on a problem where you are not making much progress.

5. Decide where to begin. This may depend on your personality and the expectation you have for your performance on the contest.

    - If you are a confident student who expects to perform very well on the contest, you may want to start with the most difficult question. Jot down a few ideas. Only work on the most difficult question for ten minutes. Then in a similar manner, spend ten minutes on the second most difficult question. Then go back to question 1 and complete the rest of the contest. This approach gives your brain the most amount of time to keep thinking about these challenging problems. Your subconscious will continue to think about the difficult questions as you work through the rest of the contest and you may have more ideas when you return to them.
    - Some students need the confidence boost of starting with an easier question to put them at ease and calm their mind to work on more challenging things. If that is you, then consider starting with the first question and working through the questions in order. Keep points 3 and 4 in mind. Do not spend too much time on one question. Improving answers can sometimes be a better use of time than remaining stuck on a question.

6. Practice is the best preparation. The best way to get better at solving contest problems is to solve more contest problems. You can access old CSMC and Euclid contests (and their solutions) on our Past Contests page. Consider discussing these problems with your classmates. Discuss the larger problem solving strategies you used that may apply to other problems. To improve the clarity of your solutions, swap solutions with a classmate and see if you can understand each other's solutions. Also consider completing some of these contests under contest-like conditions. Set a timer and use no resources other than your calculator.

7. Expand the tools in your problem solving toolbox. We have free online courseware entitled Problem Solving and Mathematical Discovery. You will learn about different problem solving techniques and have the opportunity to look at a lot of problems at a variety of difficulty levels.

8. If you are especially keen to engage with problems at the difficulty level of the most difficult questions on the contest, check out the Problem of the Month. A new problem will be posted on the first Tuesday of every month from October to May. An archive of all of the problems from previous years and their solutions is also available.