The CENTRE for EDUCATION in MATHEMATICS and COMPUTING

cemc.uwaterloo.ca

The CEMC is Canada's largest and most recognized outreach organization for promoting and creating activities and materials in mathematics and computer science.

UNIVERSITY OF WATERLOO
FACULTY OF MATHEMATICS

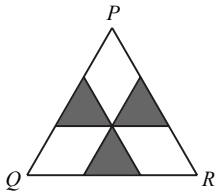
MATHEMATICS AND COMPUTING CONTESTS

The CEMC develops and administers internationally recognized contests that inspire students to develop an interest in and love for mathematics and computer science.

OUR CONTESTS:

- are accessible to a large range of students and are also challenging to the very best students
- help students to develop their problem solving skills
- are written annually by more than 225 000 students from more than 75 countries

CONTEST	GRADES	MONTH	FORMAT
Gauss	7	May	Multiple choice
Gauss	8	May	Multiple choice
Beaver Computing Challenge	5 to 10	November	Multiple choice Written online
Pascal	9	February	Multiple choice
Cayley	10	February	Multiple choice
Fermat	11	February	Multiple choice
Fryer	9	April	Answer only and full solution
Galois	10	April	Answer only and full solution
Hypatia	11	April	Answer only and full solution
Euclid	12	April	Answer only and full solution
Canadian Intermediate Mathematics Contest	9 & 10	November	Answer only and full solution
Canadian Senior Mathematics Contest	11 & 12	November	Answer only and full solution
Canadian Team Mathematics Contest	9 to 12	April	Team, individual and relay events
Canadian Computing Competition	9 to 12	February	Programming Written online



SAMPLE PROBLEM

In the diagram, $\triangle PQR$ is equilateral and has side length 6 cm. Each of the shaded triangles is equilateral and has side length 2 cm. What fraction of the area of $\triangle PQR$ is shaded?

A. $3/7$ C. $1/2$ E. $2/3$
B. $1/3$ D. $3/5$

Visit **cemc.uwaterloo.ca** to find more information and to download free copies of past contests and full solutions.

MASTER OF MATHEMATICS FOR TEACHERS

Earn a Master's degree online by learning mathematics designed to help improve your teaching.

THE MMT:

- designed for current math teachers
- is a part-time, online Master's degree available from anywhere in the world
- gives a deeper understanding of the mathematical foundations relating to core secondary school curricula
- provides exposure to important applications of mathematics
- has no requirement to be in Waterloo

"MMT course material is challenging but attainable, and very rewarding. I have developed new course materials as a direct result of the MMT program, and additionally my classes are now more consciously directed at some of the deeper concepts presented in the program, much to the benefit and delight of my students. Being a student again has given me perspective on the lives of my own students and has made me more effective at understanding their challenges. I highly recommend the MMT program for any high school math teacher. In fact, I would even go so far as to say it should be mandatory!"

– **MMT graduate**, Toronto, Ontario

CEMC COURSEWARE

courseware.cemc.uwaterloo.ca

Use free curricular resources developed by experienced and outstanding educators. The materials contain video lessons, interactive worksheets, and unlimited opportunity to practice with feedback. The courseware does not require registration. Start learning from a world-class group of educators today!

Material for Grades 9 to 11 is under development.

COURSES CURRENTLY AVAILABLE:

- Grade 12 Advanced Functions and Pre-Calculus
- Grade 12 Calculus and Vectors
- Computer Science: Python from Scratch
- Grade 7 and 8 Mathematics
- Computer Science: Language Independent Programming Lessons
- Computer Science: Web Basics
- Computer Science: Web Programming

Visit cemc.uwaterloo.ca to find more information and to learn about additional resources.

WEB RESOURCES

Explore our free online resources that both support mathematics and computer science education in the classroom, and provide enrichment opportunities.

MATHFROG Grades 4 to 6	INVITATIONS TO MATHEMATICS Grades 4 to 6	WIRED MATH Grades 7 to 10
Integrates online games with paper and pencil exercises	E-books to assist mathematics teachers, arranged by strand	Integrates online games with exercises, challenge problems, and enrichment
MATH CIRCLES Grades 6 to 12	**PROBLEM OF THE WEEK** Grades 3 to 12	**REAL-WORLD MATH** Grades 7 to 12
Electronic material including videos, presentation outlines and problem sets	Weekly e-mail subscription providing opportunity to solve grade-specific problems	Problem solving activities related to applications
MATH AND CS IN THE NEWS Grades 9 to 12	**PROBLEM SET GENERATOR** Grades 7 to 11	**CS CIRCLES** Grades 9 to 12
Regular feature linking to stories in the world news showing the use of mathematics and computer science	Allows anyone to create random sets of problems from past contests	Self-contained modules that teach computer programming

Visit cemc.uwaterloo.ca to find more information and to learn about other face-to-face opportunities.

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Contact us for more information:

University of Waterloo | Faculty of Mathematics
Waterloo, ON, Canada N2L 3G1

cemc@uwaterloo.ca

519-888-4808

@uWaterloo_CEMC

CEMC: Centre for Education in Mathematics and Computing

CEMC WORKSHOPS AND CONFERENCES

For Students

Math Circles

- weekly on-campus enrichment activity for students in grades 6 to 12

Workshop in Computer Science for Young Women

- week-long workshop for female students from across Canada
- designed to spark interest in computer science
- lectures, labs, hands-on activities

Programming Challenge for Girls

- one-day on-campus event
- introduces programming to girls in early high school
- learn the basics of object-oriented programming through hands-on tutorials and challenges

Think About Math!

- workshop demonstrating that math is fun, relevant, and leads to exciting careers
- designed for girls in early high school to ignite enthusiasm for mathematics

For Teachers

Summer Conference for Computer Studies Educators

- annual conference for computer science and computer engineering teachers
- network with other teachers, learn new skills and brainstorm classroom activity ideas

Math Teachers' Conference

- annual conference for mathematics teachers
- focuses on problem solving, curriculum, technology and enrichment

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