THE CENTRE FOR EDUCATION IN MATHEMATICS AND COMPUTING

CEMC.UWATERLOO.CA

UNIVERSITY OF WATERLOO | The CENTRE for EDUCATION in MATHEMATICS and COMPUTING

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

› have 265 000 registrations from more than 80 countries each year

CONTEST	GRADES	MONTH	FORMAT
Beaver Computing Challenge	5 to 10	November	Multiple choice Written online
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 Computing Competition	9 to 12	February	Programming 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 Team Mathematics Contest	9 to 12	April	Team, individual and relay events
Gauss	7 & 8	May	Multiple choice

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

CEMC WORKSHOPS AND CONFERENCES

For Students

CEMC Visits Schools

› workshops led by enthusiastic CEMC educators focus on developing problem-solving skills

› connects young learners to math and computer science with in-person or virtual workshops right in their own classrooms

Math Circles

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

› covers mathematics topics outside the usual curriculum through direct instruction and problem-solving activities

The following workshops are designed for students of gender identities under-represented in mathematics and computer science including women, non-binary and trans folk.

CS Escape

› workshop for students in grade 8 who are interested in learning about programming and enjoy a challenge

› learn basic computer science concepts using CoSpaces and embark on their own programming project

Seeing Possibilities And Rewards in Computer Science (SPARCS)

› week-long on-campus workshop for students in grades 9 and 10 from across Canada

› a series of lectures, labs and hands-on activities designed to spark interest in computer science

Think About Math!

› one-day workshop for students in grades 9 and 10 designed to ignite enthusiasm for mathematics

› meet with University of Waterloo Math graduates in various career fields and participate in activities that explore a variety of applications of mathematics

For Educators

Our teacher conferences help bring educators together to share their knowledge and expertise, build new connections and tap into a renewed enthusiasm for mathematics and computer science.

Summer Conference for Computer Studies Educators

› annual on-campus summer conference for computer science and computer engineering teachers

Math Teachers' Conference

› annual on-campus summer conference for grades 7 to 12 mathematics teachers

CEMC COURSEWARE

The CEMC courseware materials features lessons, interactive activities, enrichment challenges, and unlimited opportunity for practice with feedback. The courseware is online, free to use, and does not require registration. Start learning from a world-class group of educators today!

cemc.uwaterloo.ca/courseware

CURRENTLY AVAILABLE

› Grade 7 and 8 Mathematics
› Grade 9/10/11 Mathematics
› Grade 12 Advanced Functions and Pre-Calculus
› Grade 12 Calculus and Vectors
› Problem Solving and Mathematical Discovery
› Computer Science: Python from Scratch
› Computer Science: Language Independent Programming Lessons
› Computer Science: Web Basics
› Computer Science: Web Programming

Check out our library of over 700 interactive mathematics applications!

WEB RESOURCES

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

CEMC AT HOME	PROBLEM OF THE WEEK	PROBLEM OF THE MONTH
Grades 4 to 12 Digital material providing fun and educational ways to do mathematics and computer science while at home	**Grades 3 to 12** Weekly email subscription providing opportunities to solve grade-specific problems	**Grades 9 to 12** Intended to challenge enthusiastic secondary school mathematics students
REAL-WORLD MATH	PROBLEM SET GENERATOR	CS CIRCLES
Grades 7 to 12 Problem solving activities related to applications of mathematics and computer science	**Grades 7 to 11** Allows anyone to create random sets of problems from past contests	**Grades 9 to 12** Interactive lessons that teach computer programming

MASTER OF MATHEMATICS FOR TEACHERS (MMT)

This fully online program combines flexibility with world-class education to deliver a rich learning experience that equips graduates to engage their students with renewed confidence. It is designed for secondary school teachers who wish to:

› increase their understanding of the mathematical foundations of core secondary school curricula

› strengthen knowledge of mathematics and its applications

› explore new and innovative ways to bring their knowledge into the classroom

Here are just some of the courses we offer:

› Problem Solving and Mathematical Discovery
› Foundations of Calculus
› History of Mathematics
› Number Theory for Teachers
› Cryptography
› Statistics for Teachers
› Mathematics for Global Citizens
› Math and Music

CONTACT US   CEMC.UWATERLOO.CA

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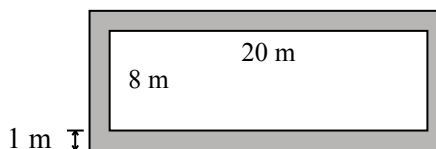
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SAMPLE PROBLEM

A rectangular pool measures 20 m by 8 m. There is a 1 m wide walkway around the outside of the pool, as shown by the shaded region. The area of the walkway is

(A) 56 m²   (B) 60 m²   (C) 29 m²

(D) 52 m²   (E) 50 m²