

1999 AHSME Sample Questions¹.

Answers: 1)E 6)D 15)E 19)C 27)A 30)D

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Use of Toll Free Number Teachers Only

(American Mathematics Contest \Rightarrow 10)

AMC \Rightarrow 10

AMC \Rightarrow 12

(American Mathematics Contest \Rightarrow 12)

TUESDAY, February 15, 2000

Save \$10 - \$20 with Early Registration!



2000 AMC exam dates:

AMC \Rightarrow 10-TUESDAY, February 15, 2000

AMC \Rightarrow 12-TUESDAY, February 15, 2000

AIME-TUESDAY, March 28, 2000

USAMO-TUESDAY, May 2, 2000

AMC \Rightarrow 8-TUESDAY, November 14, 2000

www: <http://www.unl.edu/amc>

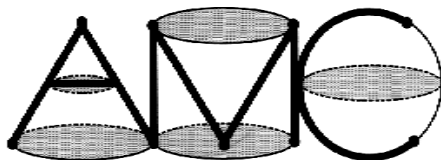
New CONTEST FORMAT NAMES

NEW CONTEST, NEW FORMAT, NEW NAMES

The American Mathematics Competitions is pleased to announce a new contest as well as new names and a modified format for two of the current exams. The AJHSME is now the American Mathematics Contest $\Rightarrow 8$ (AMC $\Rightarrow 8$) and the AHSME is now the American Mathematics Contest $\Rightarrow 12$ (AMC $\Rightarrow 12$). The new contest is the American Mathematics Contest $\Rightarrow 10$ (AMC $\Rightarrow 10$), for students in grades 10 and below. This new contest will give more young students an opportunity to successfully participate in the American Mathematics Competitions.

The AMC $\Rightarrow 10$ and AMC $\Rightarrow 12$ will each be 75 minutes long and will consist of 25 questions each. Each correct answer is worth 6 points and a blank is worth 2 points. The AMC $\Rightarrow 10$ and AMC $\Rightarrow 12$ will have several questions in common and will be given at the same time, on the Tuesday before the third Monday in February (the current AHSME date). The students should choose between AMC $\Rightarrow 10$ and AMC $\Rightarrow 12$. Students in 10th grade and under may take either the AMC $\Rightarrow 10$ or AMC $\Rightarrow 12$, but 11th and 12th grade students may not take the AMC $\Rightarrow 10$. The school team score will be determined from the AMC $\Rightarrow 12$. To qualify for the AIME a student must score at least 100 points on the AMC $\Rightarrow 12$ or be in the top 1% of the AMC $\Rightarrow 10$ participants.

The registration fee for one or both contests is \$30.00. One bundle of ten AMC $\Rightarrow 12$ is \$12.00 and one bundle of ten AMC $\Rightarrow 10$ is \$10.00. The first bundle of the AMC $\Rightarrow 10$ will be free for the year 2000 only.



INVITATION & PARTICIPATION

A CORDIAL INVITATION is extended to your school to participate in the AMC \Rightarrow 10 (American Mathematics Contest \Rightarrow 10) and the AMC \Rightarrow 12 (American Mathematics Contest \Rightarrow 12) to be held on TUESDAY, February 15, 2000. Over 341,500 students from over 5,200 schools participated in the American High School Mathematics Examination (AHSME) in 1999. The National Association of Secondary School Principals has placed this program on the NASSP, National Advisory List of Contests & Activities for 1999-2000. We hope that you will participate!

I. PURPOSE --- The purpose of the exam is to spur interest in mathematics and develop problem solving ability through the excitement of friendly competitions in a timed format. In order to challenge students at all grade levels, and with varying talents, the problems range from easy to extremely difficult. Students who plan to take the AMC \Rightarrow 12 for the first time should look at prior year exams in order to set reasonable goals for themselves.

II. EXAM SUBJECT MATTER & FORMAT --- AMC \Rightarrow 12 is similar to the AHSME, and covers High School Mathematics excluding calculus. The subject matter associated with AMC \Rightarrow 10 is normally covered in grades 9 and 10.

III. REGISTRATION DEADLINES AND FEES --- Registration may be completed by mailing the Registration Form included in this brochure. Fees for each school wishing to register are as follows:

Early Registration (By Dec. 31)	\$30
Registration (Jan. 1 - Jan. 15	\$40*
<i>Late Registration</i> (after Jan. 15)	\$50*

*(Canadian Schools: disregard Registration & Late Registration)

Late Registrations (after Jan. 15) will be accepted via FAX 402-472-6087 or phone 1-800-527-3690. We accept Visa & MasterCard, or we require a Purchase Order # for billed orders which should include an additional \$5 billing fee. If a Purchase Order is not appropriate we will require a "Letter of Intent to Pay" which can be faxed to you. This letter can be used either if you intend to send a check or if you want to be billed without a Purchase Order.

Please submit your registration as soon as possible. Early registration will reduce your cost, provide you with ample time to read the Teachers' Manual and complete pre-examination activities.

IV. CEEB # --- The CEEB number (College Entrance Examination Board) is the same as the Educational Testing Service (ETS) number. Please ask your school counselor for your number before you send your registration form. Also, if you need to call us about your registration please have your CEEB # available.

V. PARTICIPATION RULES & ELIGIBILITY --- The AMC \Rightarrow 10 & AMC \Rightarrow 12 are to be given at the same time, in each participating school on TUESDAY, February 15, 2000, in a convenient 75-minute interval, preferably in the morning.

Who is eligible to participate?

1. Any student who is officially enrolled in high school, and is taking at least one course;
2. Students in lower grade levels;
3. Home schooled students (18 or under).

TO RECEIVE OFFICIAL “TEAM” STATUS AND AWARDS, A SCHOOL MUST HAVE AT LEAST THREE PARTICIPANTS. The team score for a school is the sum of its three highest student scores and will be determined from the AMC \Rightarrow 12. These students must be citizens or permanent residents of the U.S.A. or Canada. The AMC \Rightarrow 10 & AMC \Rightarrow 12 must be proctored by a faculty member of the participating school.

The results of the AMC \Rightarrow 10 & AMC \Rightarrow 12 are used to identify students with unusual mathematical ability. To assure that this purpose is served, the Committee on the American Mathematics Competitions reserves the right to re-examine students before deciding whether to grant official status to individual or team scores.

Re-examination will be requested when, after an inquiry, there is a reasonable basis to believe that scores have been obtained by extremely lucky guessing or dishonesty. Official status will not be granted if a student or school does not agree to a requested re-examination. The Committee also reserves the right to disqualify all scores from a school if it is determined that the required security procedures were not followed.

VI. ALTERNATE AMC \Rightarrow 10 & AMC \Rightarrow 12 DATES --- Early administration of the exams is never permitted and will lead to disqualification since this would jeopardize scores of all other participating schools.

There is only one official date for the administration of the exams, namely, TUESDAY, February 15, 2000. However, it may be given unofficially on the school days of February 16 & 17, 2000. Those who take the AMC \Rightarrow 10 & AMC \Rightarrow 12 officially are eligible for national awards. To qualify for the AIME a student must score at least 100 points on the AMC \Rightarrow 12 or be in the top 1% of the AMC \Rightarrow 10 participants. Those taking the AMC \Rightarrow 10 & AMC \Rightarrow 12 unofficially will be eligible to take the AIME but will not be eligible for national awards.

VII. SECURITY & INTEGRITY OF THE EXAM --- Since the exam can be given on alternate dates (see Item VI above), in order to protect its integrity, publication or reproduction of the problems/solutions via copier, telephone, eMail, WWW or media of any type is strictly prohibited.

VIII. CALCULATORS --- No problems on the exam will require the use of a calculator. However, any non-typewriter keyboard calculator may be used during the exam.

IX. BRAILLE, LARGE PRINT, SPANISH AND FRENCH EXAMS --- All requests must be made no later than January 15, 2000. Braille and Large Print editions of the 2000 AMC \Rightarrow 10 & AMC \Rightarrow 12 will be available at a cost of \$1.00 for each exam ordered plus \$4 for postage and handling. Spanish and French editions of the 2000 AMC \Rightarrow 10 & AMC \Rightarrow 12 may be requested at no extra cost.

Puerto Rico Schools: Please indicate on the Registration Form if you want **Spanish** or **English** exams.

X. AMC \Rightarrow 10 & AMC \Rightarrow 12 RESULTS AND NATIONAL AWARDS --- The registration fee provides each participating school with a copy of the exam and solutions pamphlet, individual school results, intramural awards and a detailed National Summary of Results and Awards.

The U.S.A. and Canada are divided into eleven exam regions. National Awards are given in each of these regions to five schools and ten students who officially participate in the exam.

For the AMC \Rightarrow 10 & AMC \Rightarrow 12 an elegant award plaque is given to the top scoring student in each state. All schools returning results for three consecutive years will receive a 12-Year Plaque with the top scoring student's name engraved. Each year thereafter an engraved nameplate indicating the top scoring student will be sent.

XI. INTRAMURAL AWARDS ---

- A. A School Winner Pin or Medal is awarded to a student with the highest score on the AMC \Rightarrow 10 & AMC \Rightarrow 12 in each school.
- B. A Bronze, Silver or Gold Medal is awarded to a student who achieves the highest score in the school for two, three, or four consecutive years, respectively.
- C. An Honor Roll of Distinction Pin is awarded to the top scoring one percent of the students.
- D. A Certificate of Distinction is awarded to all students with a score of 100 or above.
- E. A Certificate of Merit is awarded to schools with a team score of at least 300 on the AMC \Rightarrow 12.

XII. TEACHER RECOGNITION --- Each year at least twenty teachers whose students do well on the AMC \Rightarrow 12 are recognized with the **EDITH MAY SLIFFE AWARD** for their distinguished teaching. The award winners receive a cash prize, a certificate and a one-year complimentary membership in the Mathematical Association of America. The selection of the winners is based on the school team score and recommendations of the team members.

XIII. AIME AND USAMO --- Students who score at least 100 points on the AMC \Rightarrow 12 and those who are in the top 1% of the AMC \Rightarrow 10 are automatically invited to participate in the American Invitational Mathematics Examination (AIME), scheduled for TUESDAY, March 28, 2000. The top-scoring U.S.A. AMC \Rightarrow 10 & AMC \Rightarrow 12/AIME students (according to a weighted average) will be invited to take the prestigious U.S.A. Mathematical Olympiad (USAMO) on TUESDAY, May 2, 2000. More details about these competitions are provided in the AMC \Rightarrow 10 & AMC \Rightarrow 12 Teachers' Manuals which you will receive after registering your school for the AMC \Rightarrow 10 & AMC \Rightarrow 12.



SPONSORING ORGANIZATIONS

Mathematical Association of America

Society of Actuaries

Mu Alpha Theta

National Council of Teachers of Mathematics

Casualty Actuarial Society

American Statistical Society

American Mathematical Association of Two-Year Colleges

American Mathematical Society

American Society of Pension Actuaries

Consortium for Mathematics and its Applications

Pi Mu Epsilon

National Association of Mathematicians

School Science and Mathematics Association



PUBLICATIONS / ORDER FORM

Please Note: All materials are copyrighted, and it is illegal to duplicate them.

AMC/MAA PROBLEM BOOKS: Problem Book I 1950-1960 # _____ @\$10/ea = \$ _____

Contest Problem Books I-IV contain AHSME questions and solutions for the years indicated.

Problem Book II 1961-1965 # _____ @\$10/ea = \$ _____

Problem Book III 1966-1972 # _____ @\$13/ea = \$ _____

Problem Book IV 1973-1982 # _____ @\$13/ea = \$ _____

Contains both AHSME and AIME questions and solutions 1983-1988. Problem Book V 1983-1988 # _____ @\$28/ea = \$ _____

USA Math Olympiad 1972-1986 : Contains USA Olympiad questions and solutions for the years indicated. # _____ @\$18/ea = \$ _____

International Mathematical Olympiads: 1959-1977 # _____ @\$15/ea = \$ _____

Contain International Olympiad questions and solutions for the years indicated. 1978-1985 # _____ @\$18/ea = \$ _____

Mathematical Contests: Math Contests 1995-1996 # _____ @\$15/ea = \$ _____

Contain Olympiad problems and solutions from around the world. Math Contests 1996-1997 # _____ @\$15/ea = \$ _____

* Math Contests 1997-1998 # _____ @\$15/ea = \$ _____

MAA Books

Which Way Did the Bicycle Go? # _____ @\$30/ea = \$ _____

Complete solutions to the 191 problems are included along with problem variations and topics for investigations.

Problems for Mathematicians, Young and Old # _____ @\$36/ea = \$ _____

Much can be expected of this book, considering the stature of its author. Fortunately, the book delivers, in that the problems and commentary are fascinating. ---Choice

Combinatorics # _____ @\$28/ea = \$ _____

This book teaches the art of enumeration, or counting, by leading the reader through a series of carefully chosen problems that are arranged strategically to introduce concepts in a logical order and in a provocative way.

Five Hundred Mathematical Challenges # _____ @\$37/ea = \$ _____

The book is an excellent source of problems for high school or college teachers who wish to challenge mathematically oriented students. The problems cover a wide range of topics, including geometry, probability and combinatorics...I recommend this book highly for mathematics teachers as a source of nontrivial precalculus problems. ---AAAS, Science Books and Films

Erdos to Kiev # _____ @\$34/ea = \$ _____

The problems included in this collection are taken from geometry, number theory, probability, and combinatorics, Solutions are included.

The Wohascum County Problem Book # _____ @\$25/ea = \$ _____

If you like problem solving, this book belongs on your shelf. Most of the problems require nothing beyond calculus and many should be accessible to high school students.

Power Play # _____ @\$32/ea = \$ _____

Books that bring out the element of play in mathematics are lamentably rare, so Edward J. Barbeau's Power Play is valuable. All you need is some basic algebra.

Old and New Unsolved Problems in Plane Geometry & Number Theory # _____ @\$36/ea = \$ _____

Klee and Wagon discuss some of the unsolved problems in number theory and geometry, many of which can be understood by readers with a very modest mathematical background.

From Zero to Infinity # _____ @\$25/ea = \$ _____

The book combines the mathematics and the history of number theory with descriptions of the mystique that has, on occasion, surrounded numbers even among great mathematicians.

Geometry Revisited # _____ @\$19/ea = \$ _____

The book is rich in remarkable facts and thereby is very effective in promoting the significance and the value of geometry in mathematical teaching, a promotion which is very necessary. ---Mathematical Reviews

Hungarian Problem Book I: 1894-1905 # _____ @\$ 8/ea = \$ _____

* Available after December 1999

SUBTOTAL PAGE 1 \$ _____

(Order Form continued on back panel)

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BULK AHSME Specimen Sets (\$5/set) 89___ 90___ 91___ 92___ 93___ 94___
 Each Set contains 10 exams and 10 solutions of the same year.. 95___ 96___ 97___ 98___ 99___ .. # ___ @ \$5/ea = \$ _____

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 gifted students. A special Geometry Volume is also available. Vol. 1___ Vol. 2___
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	\$75.01 -- UP	\$15.00

6. **CANADIAN:** Surface Postage & Handling, add 15% of total order with a \$3 min. & \$20 max. Air Mail Postage & Handling, add 20% with a \$4 min. & \$20 max.

Please Note: Orders which do not include the correct amount will be billed.

7. **INTERNATIONAL ORDERS:** DO NOT PRE-PAY -- A PROFORMA INVOICE WILL BE SENT INCLUDING POSTAGE AND HANDLING FEES.

8. Unpaid Purchase Orders will be accepted. There will be a \$5.00 billing fee and postage charge added to the order.

Please Send Your Order for Publications To:

American Mathematics Competitions

ATTN: HS Publications

P.O. Box 81606

Lincoln, NE 68501-1606



2000 REGISTRATION FORM

AMC⇒10

American Mathematics Competitions

AMC⇒12

The date for the AMC⇒10 and the AMC⇒12 is TUESDAY February 15, 2000.

PLEASE PRINT

School CEEB# (ETS, see section VI, 6 digits.): _____

Exam Manager: _____

School Name: _____

School Address: _____

City: _____ State: _____ Zip: _____

School Phone #: (_____) _____

E-mail (for sending results) Please Print: _____

Type of School (Circle One): Public Private Home School

REGISTRATION FEE (for one contest or both!) By Dec. 31: **\$30**
Jan. 1 – Jan 15 **\$40**
After Jan 15 **\$50** \$ _____

AMC⇒10

Contest Bundles of ten # _____ @ \$10/bundle = \$ _____

FIRST BUNDLE AMC⇒10 free for the year 2000

Solutions Sets of ten (optional) ... # _____ @ \$ 5/set = \$ _____

AMC⇒12

Contest Bundles of ten # _____ @ \$12/bundle = \$ _____

Solutions Sets of ten (optional) ... # _____ @ \$ 6/set = \$ _____

SHIPPING (First Class/UPS Shipping & Handling:)

United States Schools & Military Schools: **REQUIRED** \$ 5.00

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(with a \$60 maximum)

OPTIONAL (Foreign Schools Only): The AMC office will send results
and AIME materials by Express Mail for a **\$25** fee \$ _____

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Unpaid Purchase Orders requiring an invoice
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TOTAL ORDER \$ _____

Mail along with your payment or Purchase Order to:


VISA/MC # : _____

Name (Please Print): _____

Exp. Date: _____

After Jan. 15 registrations will be taken by FAX or phone.

American Mathematics Competitions
ATTN: HS Registration
P.O. Box 81606
Lincoln, NE 68501-1606



NEW

NEW CONTEST, NEW FORMAT, NEW NAMES

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