



The Mathematical Association of America
 American Mathematics Competitions
 University of Nebraska - Lincoln
 P.O. Box 81606
 Lincoln, Nebraska 68501-1606

MATH CLUB PACKAGE

Once again we are offering a **Math Club Package**. This will include a Club Advisor's Handbook, including 50 problems, presented in the same format as the Student Practice Questions in the back of the 2004-2005 AMC Teacher Manuals. In addition, we plan to have web based resources such as a mini quiz of the month and a question of the week for club use.

The American Mathematics Competitions
 are Sponsored by

The Mathematical Association of America
 University of Nebraska - Lincoln

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W. H. Freeman & Co.

CALIFORNIA: I love this contest. I participated as a student, and now I enjoy giving it as a teacher. The challenge is worth the price of admission.

COLORADO: This is a great competition for students. It is challenging and problem-solving based. It helps us identify mathematical talent not always obvious on rote memory tests. Thank you.

HAWAII: We like giving our students a chance to attempt a different kind of challenging problem. I like to discover our students with "star-power".

IOWA: I really like the parent letter and practice questions.

INDIANA: Thank you for all your efforts and your attention to keeping the costs minimal.

MONTANA: I feel that this contest is very good. My students enjoy competing in it. The kids pay the expenses out of their own pocket.

NORTH DAKOTA: Professionally done. Well organized and prompt with result. Thanks for the invitation!!

NEW YORK: The inclusion this year of posters, career pamphlets and actuarial information was a great improvement and motivator.

TEXAS: The mathematical challenges the AMC exams have given the students in my program over the years have been invaluable, not just to the students . . . who win awards, but also the students whose names you will never hear. All of the kids enjoy taking the exams and following their progress from year to year, as well as comparing their performance to a national standard.

NEW BRUNSWICK, CANADA: It is good to spend a little time working outside the curriculum. It is also a great way to provide enrichment for kids that do really well.

ONTARIO, CANADA: Having the 2 contest dates is ideal for us - one has always worked with our school calendar.

For more information about the **American Mathematics Competitions**, qualification standards, publication ordering, and AIME, USAMO, MOSP and IMO dates, please visit our website at <www.unl.edu/amc>.

2005-2006 AMC contest dates:

AMC 8 - TUESDAY, November 15, 2005

AMC 10 & AMC 12 - TUESDAY, January 31, 2006
 or WEDNESDAY, February 15, 2006

AIME - TUESDAY, March 7, 2006

or WEDNESDAY, March 22, 2006

USAMO - Mid-April, 2006

EXPLORE MATHEMATICAL HORIZONS

AMC 10 AMC 12

American
 Mathematics
 Competitions

The Mathematical Association of America



The National Association of Secondary School Principals (NASSP) has placed the AMC 8, AMC 10 and AMC 12 on the NASSP National Advisory List of Contests and Activities for 2005-06.





AMC 10 & AMC 12



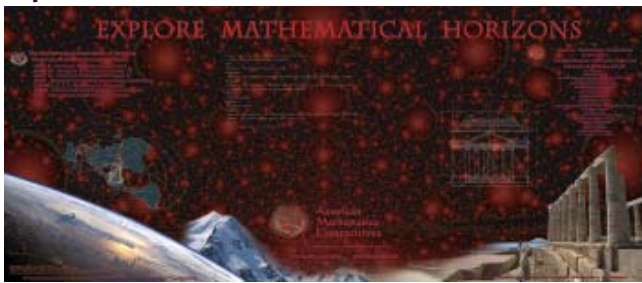
We extend an invitation to your school to take part in the American Mathematics Competitions for 2006.

- ⚙ AMC 10 (American Math Contest 10, 10th grade and below)
- ⚙ AMC 12 (American Math Contest 12, 12th grade and below)

The Contests will be held TUESDAY, January 31, 2006 and/or WEDNESDAY, February 15, 2006. Our purpose is to increase interest in mathematics and to develop problem solving through a friendly, fun competition.

Both AMC 10 and AMC 12 are 25-question, 75-minute multiple-choice contests administered in your school by you or a designated teacher. The AMC 12 covers the high school mathematics curriculum, excluding calculus. The AMC 10 covers subject matter normally associated with grades 9 and 10. To challenge students at all grade levels, and with varying mathematical skills, the problems range from fairly easy to extremely difficult. Approximately 12 questions are common to both contests.

When you register for the AMC 8 or the AMC 10/12 this year, we will include a free gift when we ship the contests – a set of three posters (each 17”x22”), on this year’s theme **Explore Mathematical Horizons.**



1. PARTICIPATION RULES & ELIGIBILITY

The contests are given in your school at the same time to all participating students. The AMC 10A and 12A on TUESDAY, January 31, 2006, and/or the AMC 10B and 12B on WEDNESDAY, February 15, 2006 in a convenient 75-minute interval, preferably in the morning. The contests should be proctored by a faculty member of the participating school.

AMC 12 Eligibility – A student in a program leading to a high school diploma, and under 19.5 years of age on the day of the contest.

AMC 10 Eligibility – A student in a program leading to a high school diploma, under 17.5 years of age on the day of the contest, and not enrolled in grades 11 or 12 or equivalent.

Home schools must indicate the site of the exam (not the student’s home) and the name of the proctor (not a parent) and attach this information to the registration form. Please call the AMC office for details.

2. REGISTRATION DEADLINES AND FEES

You can register by mailing the Registration Form included in this brochure or on the web at www.unl.edu/amc.

- Registration/Standard Shipping (Contest A only) \$39
- Registration/Expedited Shipping (Dec 16-Jan 10) \$49
- Registration/Overnight Shipping 12A (Jan 11-Jan 25) \$59
- Registration/Overnight Shipping 12B (Jan 11-Feb 7) \$59

Schools using a credit card or purchase order may register via the Web (www.unl.edu/amc) or fax to us at 402-472-6087. We accept Visa and Mastercard. When paying by check please mail your registration form with payment well in advance of the deadline dates.

Early registration will reduce your cost and provide you extra time to fully utilize the study guide found in the Teachers’ Manual.



3. SCHOOL RESULTS & STUDENT AWARDS

Each participating school receives a copy of the contest and solutions, individual school results, intramural awards and the National Summary of Results and Awards booklet.



Schools with at least three participants on a contest date will be eligible for intramural, state and national awards. The USA and Canada are divided into eleven contest regions and National Awards are given in each region to the top five schools and top ten students who officially participate in the contests. There are a variety of other national and intramural awards, which can be seen by visiting our web site.



AMC 12 students who rank in the top 5% nationally (or score at least 100) will qualify for the American Invitational Mathematics Exam (AIME). AMC 10 students who rank in the top 1% nationally (or score at least 120) will also qualify for the AIME. The USAMO (USA Mathematical Olympiad) qualifiers are picked from the top students on the AIME.

The Edyth May Sliffe Award for Distinguished High School Teaching is given each year to at least twenty teachers, based on students who do well on the AMC 12 and the nominations of the student team members. The winners receive a cash prize, a certificate, and a one-year complimentary membership in The Mathematical Association of America (MAA).

4. BRAILLE, LG. PRINT, SPANISH & FRENCH

Spanish and French editions of the 2006 AMC 10 and AMC12 may be requested. Braille and Large Print editions are also available. All requests must be made no later than three weeks before the contest.

5. 2004 AMC 10B SAMPLE QUESTIONS

- Which of the following numbers is a perfect square?
(A) $98! \cdot 99!$ (B) $98! \cdot 100!$ (C) $99! \cdot 100!$ (D) $99! \cdot 101!$ (E) $100! \cdot 101!$
- A square has sides of length 10, and a circle centered at one of its vertices has radius 10. What is the area of the union of the regions enclosed by the square and the circle?
(A) $200 + 25\pi$ (B) $100 + 75\pi$ (C) $75 + 100\pi$ (D) $100 + 100\pi$ (E) $100 + 125\pi$
- Patty has 20 coins consisting of nickels and dimes. If her nickels were dimes and her dimes were nickels, she would have 70 cents more. How much are her coins worth?
(A) \$1.15 (B) \$1.20 (C) \$1.25 (D) \$1.30 (E) \$1.35
- Let $1, 4, \dots$ and $9, 16, \dots$ be two arithmetic progressions. The set S is the union of the first 2004 terms of each sequence. How many distinct numbers are in S ?
(A) 3722 (B) 3732 (C) 3914 (D) 3924 (E) 4007

6. 2004 AMC 12B SAMPLE QUESTIONS

- Minneapolis-St. Paul International Airport is 8 miles southwest of downtown St. Paul and 10 miles southeast of downtown Minneapolis. Which of the following is closest to the number of miles between downtown St. Paul and downtown Minneapolis?
(A) 13 (B) 14 (C) 15 (D) 16 (E) 17
- All the students in an algebra class took a 100-point test. Five students scored 100, each student scored at least 60, and the mean score was 76. What is the smallest possible number of students in the class?
(A) 10 (B) 11 (C) 12 (D) 13 (E) 114
- Points A and B are on the parabola $y = 4x^2 + 7x - 1$, and the origin is the midpoint of AB. What is the length of AB?
(A) $2\sqrt{5}$ (B) $5 + \sqrt{2}$ (C) $5 + \sqrt{2}$ (D) 7 (E) $5\sqrt{2}$
- A truncated cone has horizontal bases with radii 18 and 2. A sphere is tangent to the top, bottom, and lateral surface of the truncated cone. What is the radius of the sphere?
(A) 6 (B) $4\sqrt{5}$ (C) 9 (D) 10 (E) $6\sqrt{3}$



Answers
12B: 6, (A), 11, (D), 18, (E), 19, (A)
10B: 6 (C), 9, (A), 21, (A)