

Sample questions from the 2010 AMC 10 & 12

- 10B 6. A circle is centered at O , \overline{AB} is a diameter and C is a point on the circle with $\angle COB = 50^\circ$. What is the degree measure of $\angle CAB$?
- (A) 20 (B) 25 (C) 45 (D) 50 (E) 65
- 10B 13. What is the sum of all the solutions of $x = |2x - |60 - 2x||$?
- (A) 32 (B) 60 (C) 92 (D) 120 (E) 124
- 12A 11. The solution of the equation $7^{x+7} = 8^x$ can be expressed in the form $x = \log_b 7^7$. What is b ?
- (A) $\frac{7}{15}$ (B) $\frac{7}{8}$ (C) $\frac{8}{7}$ (D) $\frac{15}{8}$ (E) $\frac{15}{7}$
- 12B 9. Let n be the smallest positive integer such that n is divisible by 20, n^2 is a perfect cube, and n^3 is a perfect square. What is the number of digits of n ?
- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7
- 12B 20. A geometric sequence (a_n) has $a_1 = \sin x$, $a_2 = \cos x$, and $a_3 = \tan x$ for some real number x . For what value of n does $a_n = 1 + \cos x$?
- (A) 4 (B) 5 (C) 6 (D) 7 (E) 8

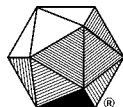
Answers: 6 (B) 13 (C) 11 (C) 9 (E) 20 (E)

American Mathematics Competitions

is a program of The Mathematical Association of America and is sponsored by The Akamai Foundation

Contributors

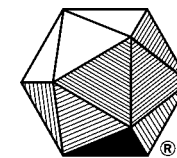
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62nd Annual American Mathematics Competitions 10/12

February 8, 2011
February 23, 2011

Register now for the high school level AMC 10 & 12!
Details inside.

American Mathematics Contest 12
American Mathematics Contest 10

AMC 12 & AMC 10

PARTICIPATION & ELIGIBILITY

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. Students may not use calculators on the contests.

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.*



PURPOSE

The Mathematical Association of America wants to increase interest in mathematics and to develop problem solving through a friendly, *and fun*, competition. We believe that one way to meet this goal is to identify, recognize, and reward excellence in mathematics through a series of national contests.



EDYTH MAY SLIFFE AWARD

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) and in the National Council of Teachers of Mathematics.

MATH CLUB PACKAGE

For an additional \$25.00 you can order a Math Club Package, which includes a Club Advisor's Handbook (with additional problems taken from the AMC archives) plus a CD with all the contests given from 2001 through Spring 2008, including the AMC 8, 10, and 12, the AIME, and the USAMO.