The American Mathematics Competitions

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The American Mathematics Competition

The American Mathematics Competition (AMC) is a series of exams offered to High School and Middle School students.
The exams include:

- The AMC 8
- The AMC 10
- The AMC 12
- The American Invitational Mathematics Examination (AIME)
- The American Mathematics Olympiad (AMO)

Since Kentucky seems to have a fairly strong MathCounts program, there may be less need to offer the AMC 8.
The AMC 10 and AMC 12 are open to high school students.
The remaining exams are by invitation.

The AMC, continued

These exams provide a chance for students to compare their mathematical skills with a competitive, national pool.
Students who do well on the exam are invited to participate in the state ARML team.
This series of exams is used in the selection of the team that represents the United States in the International Mathematics Olympiad.

The Exams

Calculator may not be used. Problems often require a clever insight to be solved.

- Algebra
- Geometry
- Elementary Counting and Number Theory
- Trigonometry, Complex Numbers, Logarithms, Functions
- No Calculus

The AMC 10 is for ninth and tenth graders and excludes the more advanced topics including trigonometry, logarithms, complex numbers and the concept of function.

Mathematical practices from the new common core

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

The exams provide a prompt for students to develop many of the practices that are needed to succeed in mathematics and in METS[1] disciplines.

[1] METS is STEM put in the proper order.

Kentucky participation

The table below gives the number of AMC 12 examinations written in Kentucky and a few other states.

State	Year	Exams	Exams per 10,000 population
MN	2011	2815	5.31
MN	2010	2729	5.15
IA	2011	1454	4.85
IA	2010	1255	4.18
NY	2011	6947	3.66
NY	2010	7636	4.02
TN	2011	942	1.50
TN	2010	789	1.25
KY	2011	586	1.36
KY	2010	463	1.08
OK	2011	301	0.82
OK	2010	339	0.92

Let's grab this opportunity to beat Tennessee.

How can students prepare?

- Have *MA*Θ or Math Club work a practice exam in groups.
- Give students a problem of the week. Past exams are one source of problems.
- Have students present solutions to each other. Let them know that we find the problems to be hard, too.
- The Academic Team Coach may appreciate an additional chance for students to work on mathematics problem solving.
- Do not over-emphasize competition. Look for students to improve from year to year.

Resources for preparation

- Sign up for the AMC mailing list `http://amc.maa.org`.
- Tests from previous years are available at the Art of Problem Solving (AoPS) wiki.
  `http://www.artofproblemsolving.com/Wiki/index.php/AMC_Problems_and_Solutions`
- Books published by the MAA:
  The Contest Problem Book I-IX These books contain old exams and solutions.
  First steps for Math Olympians An outline of the mathematics used in solving examination problems.
- AMC 10/12 Math Club package. Includes worksheets and a CD with past exams and additional worksheets.

How do I sign up?

Competition dates
AMC 10/12 A 7 February 2012
AMC 10/12 B 22 February 2012
Cost is $42 + $16 per 10 students
Register by 17 December for AMC 10/12A standard shipping.
Late registration is available.
Visit
`http://amc.maa.org/registration/registration.shtml`
for complete details.
Schools near Richmond may contact EKU.

Does the AMC State Director DO anything?

As the State Director my role is to provide information and assistance to schools offering the exam.
Registration and exam scoring is through the central office in Lincoln, Nebraska.
Please let me know what I can do to help. If you are beginning to offer the exam (and are not too far from Lexington), I would be happy to help lead a practice session.

Contact information

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