national association of mathematicians

volume XXXIX number 1 spring 2008

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IN THE NEWS

NAM's Faculty Research conference will be at Bennett College in Greensboro, NC on April 4 and 5, 2008.

Dr. Ron Mickens of Atlanta University, who has published more (~110) papers than any other active African American Mathematician was presented with The Benjamin Banneker Legacy Award by the comedian Bill Cosby in Washington DC on November 7, 2007.

David Blackwell has had 65 students (and 174 descendants total). This makes him the 14th most productive mathematician of the past 350 years. In December 2007, David Blackwell was awarded an honorary Doctor of Sciences at North Carolina State University.

AAAS Mentor Award Goes to Carlos Castillo Chavez of Arizona State University for his efforts to help underrepresented students earn doctoral degrees in the sciences.

Each year, the magazine "Diverse Issues in Higher Educaton" (formerly known as "Black Issues in Higher Education") honors scholars of note -- young minority academics who are emerging leaders in their field. This year, so honored is African American Mathematician Trachette Jackson at the University of Michigan.

On Monday, January 21, Morehouse College's mathematics department hosted Shared Success and Struggle: A Conference of Morehouse Men of Mathematics. Participants included eight non-local alumni with Ph.D.s or other valuable experience in the mathematical sciences, seven Morehouse mathematics faculty members, six mathematics and statistics graduates as well as three undergraduates, and a recent alumnus, who are prospective graduate students.

Abdulalim Abdullah Shabazz, formerly professor of Lincoln University and recipient of the 2000 Presidential [W. Clinton] Award for Excellence in Science, Mathematics and Engineering Mentoring and Distinguished Professor of Mathematics at Lincoln University has moved. He now holds the new Endowed Chair of Mathematics at Grambling State University.

Scott Williams has agreed to serve as NAM Newsletter editor until 2010. Glo Williams will serve as Associate Newsletter editor during the same period.

PLEASE Pay Your NAM Dues. This Newsletter and NAM's programs are financed by its dues paying membership. Please pay. See the end of the newsletter for the form.

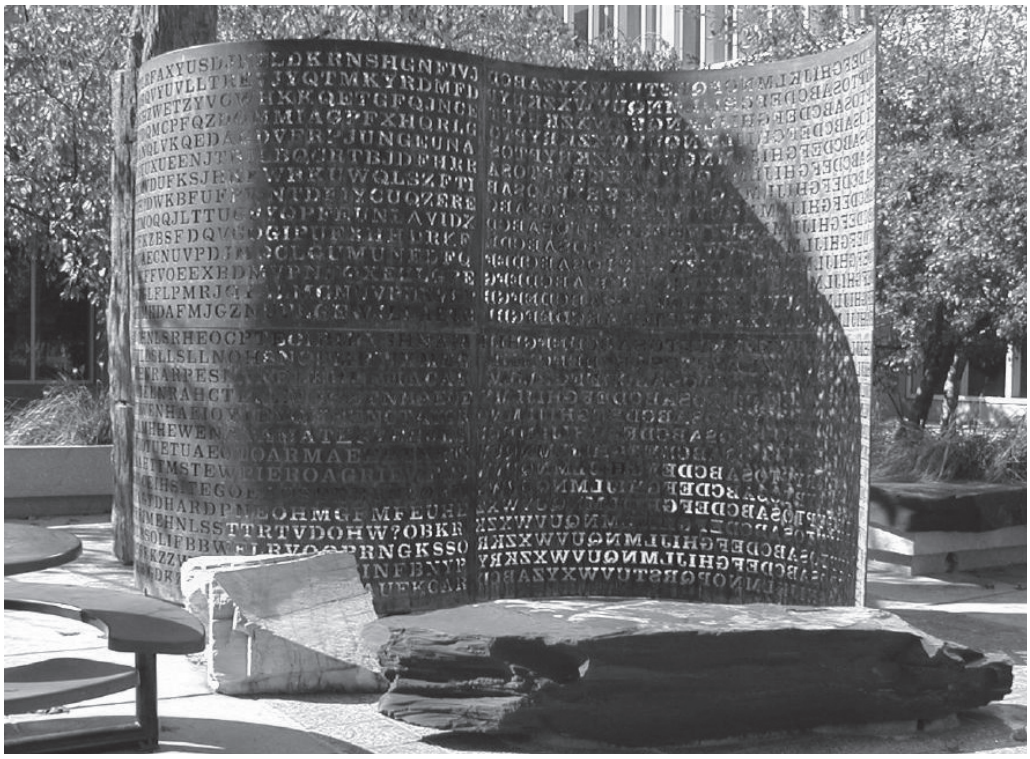
Also see the official NAM website at http://www.nam-math.org/

The Great Unsolved C.I.A. Puzzle

There is an unsolved puzzle whose physical form is a sculpture located, since 1990, in the northwestern corner of the central courtyard of CIA Headquarters in Langley, Virginia. The sculpture, called Kryptos, was created by an artist named Jim Sanborn, in collaboration with a cryptographic expert, Ed Scheidt.

The sculpture contains a riddle within a riddle, one that will be solvable only after the four encrypted passages are known. The complete answer was handed to William H. Webster, the Director of Central Intelligence when the sculpture was completed, and has been held in confidence by his successors.

Kryptos, is composed of several parts. The most famous is a wavy copper screen covered with about 1800 encrypted characters, next to a petrified tree, a gently rippling circular pool (duck pond), and various types of rocks which are in a semicircular landscaped area. Other pieces include several large slabs of granite with sandwiched sheets of copper with Morse code messages, a landscaped area with granite slabs and a duck pond, and an engraved compass with a needle pointing at a lodestone.



The morse code messages have been translated into: SOS, LUCID MEMORY, T IS YOUR POSITION, SHADOW FORCES, VIRTUALLY INVISIBLE, DIGETAL INTERPRETATU, and RQ (or maybe YR if it's looked at upside down). Some of the messages appear to be truncated or disappear as they go under a granite slab, so "T is your position" may be a portion of a message that says, "What is your position," and "Digetal interpretatu" might be short for "digetal interpretation".

The copper screen of Kryptos has thousands of characters containing encrypted messages. Jim Gillogly, a computer scientist, was the first person to publicly announce a solution of parts 1-3, which he managed with a computer attack in 1999. After he announced his solution, the CIA announced that one of its analysts, David Stein, had also solved parts 1-3 in 1998, and that he did it with pencil and paper methods. The NSA said they had a team that solved parts 1-3 in 1992, but just didn't tell anyone. See: http://www.und.nodak.edu/org/crypto/crypto/general.crypt.info/Kryptos/solution.

For a graphic of the entire code as it appears on the statue see http://realmoftwelve.kryptos.info/images/replica-tableau.gif.

Below are, translated, the first three passages of the code on the Kryptos statue as, including misspellings (of “illusion,” “underground” and “desperately”). The second passage identifies a location near the C.I.A. headquarters; the third is taken from Howard Carter’s account of the opening of King Tut’s tomb in 1922.

1. Between subtle shading and the absence of light lies the nuance of illusion.

EMUFPHZLRFAXYUSDJKZLDKRNSHGNFIVJ
YQTQUXQBQVYUVLLTREVJYQTMKYRDMFD
VFPJUDEEHZWETZYVGWHKKQETGFQJNCE
GGWHKK?DQMCPFQZDQMMIAGPFXHQRLG
TIMVMZJANQLVKQEDAGDVFRPJUNGEUNA
QZGZLECGYUXUEENJTBJLBQCRTBJDFHRR
YIZETKZEMVDUFKSJHKFWHKUWQLSZFTI
HHDDDUVH?DWKBFUFPWNTDFIYCUQZERE
EVLDKFEZMOQQJLTTUGSYQPFEUNLAVIDX
FLGGTEZ?FKZBSFDQVGOGIPUFXHHDRKF
FHQNTGPUAECNUVPDJMQCLQUMUNEDFQ
ELZZVRRGKFFVOEEXBDMVPNFQXEZLGRE
DNQFMPNZGLFLPMRJQYALMGNUVPDXVKP
DQUMEBEDMHDAFMJGZNUPLGEWJLLAETG

2. It was totally invisible.
How’s that possible? They used the earth’s magnetic field. x The information was gathered and transmitted underground to an unknown location. x Does Langley know about this? They should: it’s buried out there somewhere. x Who knows the exact location? Only WW. This was his last message. x Thirty-eight degrees fifty-seven minutes six point five seconds north, seventy-seven degrees eight minutes forty-four seconds west. ID by rows. [NOTE. WW stands for William Webster, who was the Director of the CIA at the time that Kryptos was installed, and according to Sanborn was one of the driving forces in getting more art for the Agency. When Kryptos was dedicated in 1990, Sanborn gave an envelope to Webster which allegedly contained the answers (however, Sanborn has since said that the envelope did not contain the full story).]

ABCDEFGHIJKLMNOPQRSTUVWXYZABCD
AKRYPTOSABCDEFGHIJLMNQUVWXZKRYP
BRYPTOSABCDEFGHIJLMNQUVWXZKRYPT
CYPTOSABCDEFGHIJLMNQUVWXZKRYPTO
DPTOSABCDEFGHIJLMNQUVWXZKRYPTOS
ETOSABCDEFGHIJLMNQUVWXZKRYPTOSA
FOSABCDEFGHIJLMNQUVWXZKRYPTOSAB
GSABCDEFGHIJLMNQUVWXZKRYPTOSABC
HABCDEFGHIJLMNQUVWXZKRYPTOSABCD
IBCDEFGHIJLMNQUVWXZKRYPTOSABCDE
JCDEFGHIJLMNQUVWXZKRYPTOSABCDEF
KDEFGHIJLMNQUVWXZKRYPTOSABCDEFG
LEFGHIJLMNQUVWXZKRYPTOSABCDEFGH
MFGHIJLMNQUVWXZKRYPTOSABCDEFGHI

3. Slowly, desperately slowly, the remains of passage debris that encumbered the lower part of the doorway was removed.

With trembling hands I made a tiny breach in the upper left-hand corner. And then, widening the hole a little, I inserted the candle and peered in. The hot air escaping from the chamber caused the flame to flicker, but presently details of the room within emerged from the mist. x Can you see anything?

ENDYAHROHNLSRHEOCPTEOIBIDYSHNAIA
CHTNREYULDSLLSLLNOHSNOSMRWXMNE
TPRNGATIHNRARPESLNNELEBLPIIACAE
WMTWNDITEENRAHCTENEUDRETNHAEOE
TFOLSEDTIWENHAEIOYTEYQHEENCTAYCR
EIFTBRSPAMHHEWENATAMATEGYEERLB
TEEFOASFIOTUETUAEOTOARMAEERTNRTI
BSEDDNIAAHTTMSTEWPIEROAGRIEWFEB
AECTDDHILCEIHSITEGOEAOSDDRYDLORIT
RKLMLEHAGTDHARDPNEOHMGFMFEUHE
ECDMRIPFEIMEHNLSSTTRTVDOHW?OBKR
UOXOGHULBSOLIFBBWFLRVQQPRNGKSSO
TWTQSJQSSEKZZWATJKLUDIAWINFBNYP
VTTMZFPKWGDKZXTJCDIGKUHUAUEKCAR

4. The fourth and at present unsolved section at the bottom consisting of 97 or 98 characters which remains uncracked. There is also a question mark between parts 3 and 4. Some say the question mark is part of part 3 (since it ends with the question, “Can you see anything q”). However, it’s possible that the question mark is part of part 4. The best selection of photos of Kryptos and its environs were taken by Gillogly and can be found at http://www.voynich.net/Kryptos/.

NGHIJLMNQUVWXZKRYPTOSABCDEFGHIJL
OHIJLMNQUVWXZKRYPTOSABCDEFGHIJL
PIJLMNQUVWXZKRYPTOSABCDEFGHIJLM
QJLMNQUVWXZKRYPTOSABCDEFGHIJLMN
RLMNQUVWXZKRYPTOSABCDEFGHIJLMNQ
SMNQUVWXZKRYPTOSABCDEFGHIJLMNQU
TNQUVWXZKRYPTOSABCDEFGHIJLMNQUV
UQUVWXZKRYPTOSABCDEFGHIJLMNQUVW
VUVWXZKRYPTOSABCDEFGHIJLMNQUVWX
WVWXZKRYPTOSABCDEFGHIJLMNQUVWXZ
XWXZKRYPTOSABCDEFGHIJLMNQUVWXZK
YXZKRYPTOSABCDEFGHIJLMNQUVWXZKR
ZZKRYPTOSABCDEFGHIJLMNQUVWXZKRY
ABCDEFGHIJKLMNOPQRSTUVWXYZABCD

For a list of the most famous unsolved codes and ciphers see http://www.elonka.com/UnsolvedCodes.html

No Shooting Star

In times past, “shooting stars” were one of the most mysterious and frightening of celestial events, often regarded as signs and portents. A “shooting star” is a meteorite, almost all of which are rocks chipped off asteroids during collisions, and the way so much of this debris has managed to reach earth has long been a puzzle, inadequately mathematically modelled by computer simulations that only take gravitational effects into account. Still such models are fine exercises for undergraduates majoring in Applied Mathematics.

Why are we concerned about asteroids? The objects from the meteorites are pieces that can be dangerous. Asteroids bigger than one a half mile in diameter are capable of causing extensive damage on a global scale. No matter where such an asteroid hit the Earth, the dust, from a land impact or a tidal wave from a water impact would cause substantial climate change “would lead to a rapid cut-off of the food supply and ultimately within a few months to a loss of probably a quarter of the world’s population,” said one expert. Such a major asteroid impact may have wiped out the dinosaurs.

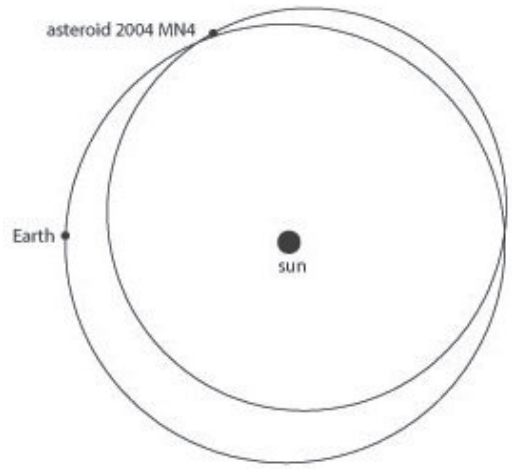
An estimate on the number of asteroids that could cause such damage is based on new calculations of the inclinations of asteroids - their angles of orbit in relation to the

plane of the Earth's orbit around the Sun. Asteroids with low inclinations are the easiest to detect. It is thought that there are over 1,000 such objects within our Solar System that could come close to Earth. In the past two decades, nine objects have come within 500,000 miles (less than twice the distance from the moon. Some computations predict such an asteroid/Earth collision within the next 30 years.

On June 30, 1908 an asteroid about 100 feet in diameter exploded just prior to impacting the earth in northern Russia. The amount of energy from the blast is about 1000 times the energy released by the atomic bomb dropped on Nagasaki, Japan. Estimated to have measured 5.0 on the Richter scale, the blast felled an estimated 80 million trees in an 800 square mile region.

Tunguska crater

On July 3rd, 2006 an asteroid came within the same distance the moon is from the earth. March 21, 2014, the asteroid QQ47, nearly a mile in diameter and thus large enough to destroy humanity, will pass within 100,000 miles of the earth. Its odds of hitting the earth have been described as smaller than the chance that a manned expedition to Mars would arrive and discover the Loch Ness Monster there. The next big event for astronomers will be Friday April 13th 2029. Scientists predict that the asteroid Apophis (2004 N4) will be coming within 20,000 miles of the Earth, which is close enough to be visible without a telescope or even hit a weather satellite.



For years, there has been a program to detect asteroids whose orbits are a potential danger to the earth. It is called the Lincoln Near Earth Asteroid Research Project. They calculate the size of these objects by bouncing high frequency radio waves off their surfaces. The reflected waves are then analyzed and the resulting data gives information about the object's size, velocity and distance. The distance is calculated from the time delay between the radar beam hitting the object and coming back to be detected by an antenna. The equation that is used here is *Distance = Speed x Time*. The velocity of the asteroid can be detected because for a moving object the frequency of the reflected wave will be different from the frequency of the initial wave, due the *Doppler Effect*.

On February 12th, 2001 the spacecraft NEAR-Shoemaker became the first space probe to land on an asteroid, landing successfully on Eros. It provided us an unprecedented amount of information about the composition of asteroids.

Should asteroids orbits have stabilized in the last billion years? How is that they are still moving around? Mmany of which have been located in the Asteroid belt between Mars and Jupiter, say 200 to 300 million miles away from the Earth. These asteroids are heated unevenly by the Sun. This radiation is then re-emitted unevenly through the asteroid's day and year, resulting in a net force on the asteroid. Over periods of 10 million million years this force can move asteroids into orbits in which they will be heavily affected by the gravity of one of the planets, and may be catapulted out of the main asteroid belt onto a potential collision course with Earth.

But what good is all this asteroid observing if there are no plans for averting disaster? One proposed plan suggests the asteroid may be deflected. In the past, studies have assumed missiles will be launched from Earth, but it now appears space-based missiles would be far more effective.

An incoming asteroid would approach the Earth on a curved, hyperbolic path. Simple mathematics shows that for every such hyperbola, there's an elliptical orbit around the Earth which intersects it at 90 degrees--the ideal angle for a missile strike because even a small impact should deflect the asteroid from its collision course.

Perusing the journal *Computational & Applied Mathematics* can elicit data about asteroid collisions.

CAARMS 14

This year CAARMS 14 will meet at a different time as well as a different place. The meeting will be the third week of July (not June) in Atlanta Georgia and Georgia Tech. The reason for the unusual time is that July 22 through July 27, CAARMS (The Conference for African Americans in the Mathematical Sciences) will have a joint meeting with AARCS (The African American Researchers in Computer Science).

Moody's Mega Math Challenge

Moody's Mega Math (M3) Challenge expands for third year: SIAM is organizing the third annual M3 Challenge, an internet-based math modeling competition for high school juniors and seniors in the Boston, Philadelphia, and New York City metropolitan areas and surrounding counties. The Challenge took place on March 8 and 9, 2008. This is the first year that students in the Boston and Philadelphia metro and surrounding areas will be eligible to compete. Nearly 700 students participated last year for $65,000 in scholarship prizes. Funding is provided by The Moody's Foundation. For further information please visit http://m3challenge.siam.org.

Enhancing Diversity in Graduate Education Program (EDGE)

The EDGE Program was launched in 1998 by Bryn Mawr and Spelman Colleges, with the goal of strengthening the ability of women students to successfully complete graduate programs in the mathematical sciences, with particular inclusion of women from minority groups. The 2008 EDGE Summer Program will be held June 5 – July 2, 2008 at Pomona College in Claremont, CA, with Local Coordinator Dr. Ami Radunskaya. The EDGE Program provides courses in analysis and algebra, a topical mini course, guest lectures, and advanced graduate student mentors. The Program also provides follow-up academic year mentoring and networking opportunities.

Applicants to the EDGE Program must be women who have applied to graduate programs in the mathematical sciences for Fall, 2008. All applicants should have completed standard junior/senior-level undergraduate courses in analysis and abstract algebra and expect to earn a Ph.D. in the mathematical sciences. Participants are provided travel, room and board, a stipend of $2,000, and a small research fund.

Applications should consist of (1) a completed application form; (2) a personal statement; (3) two letters of recommendation from mathematics faculty;(4) a transcript and current resume; and (5) a ranked list of graduate programs to which the applicant has applied. For further details, visit the website at http://www.edgeforwomen.org/. The EDGE Program will be held pending support.

Deadline for Applications: March 3, 2008
The EDGE Program, P.O. Box 270, Spelman College, Atlanta, GA 30314

Summer Undergraduate Mathematical Sciences Research Institute

(SUMSRI) at Miami University Oxford, Ohio

Seeking talented undergraduate mathematics students June 2-July 18, 2008

- 7 week research experience in mathematics or statistics
- Learn about graduate school opportunities and funding
- Learn about career opportunities in mathematics or statistics
- Prepare for the GRE
- Form supportive networks and mentoring relationships
- Improve technical writing skills

We are especially interested in, but not limited to, African Americans, other underrepresented minorities and women. Participants receive travel, housing and meals plus a stipend of $3000, and support for attending national mathematics and statistics meetings. Applications due by March 1, 2008.

For more information the website: http://www.units.muohio.edu/sumsri or contact: Dr. Vasant Waikar <waikarvb@muohio.edu> or Dr. Dennis Davenport <davenpde@muohio.edu> or Bonita Porter at: <porterbm@muohio.edu> (513) 529-8118.

2008-2009 Project NExT Announcement

Project NExT (New Experiences in Teaching) is a professional development program for new and recent Ph.D.s in the mathematical sciences (including pure and applied mathematics, statistics, operations research, and mathematics education). It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume these responsibilities. Each year, about seventy faculty members from colleges and universities throughout the country are selected to participate in a workshop preceding the Mathematical Association of America (MAA) summer meeting, in activities during the summer MAA meetings and the Joint Mathematics Meetings in January, and in an electronic discussion network.
Faculty for whom the 2008-2009 academic year will be the first or second year of full-time teaching (post-Ph.D.) at the college or university level are invited to apply to become Project NExT Fellows.
The application deadline is Friday, April 18, 2008. In 2008, we will we accepting applications in two formats: online and hard copy. For more information, see the Project NExT website, http://archives.math.utk.edu/projnext/ .
Project NExT is a program of the MAA. It receives major funding from the ExxonMobil

Foundation, with additional funding from the Dolciani-Halloran Foundation, the Educational Advancement Foundation, the American Mathematical Society, the American Institute of Mathematics, the American Statistical Association, the National Council of Teachers of Mathematics, Texas Instruments, the Association of Mathematics Teacher Educators, the Association for Symbolic Logic, the W.H. Freeman Publishing Company, Maplesoft, John Wiley & Sons, MAA Sections, and the Greater MAA Fund.

NAM Calendar

You can find NAM's Online Conference Calendar and the most recent links to relevant conferences announcements at NAM's official website http://www.nam-math.org/

Many details concerning NAM's events are posted on the NAM headquarters website http://jewel.morgan.edu/~nam/

NAM Board, Elections and Terms

For Nominations to the NAM Board, Elections and Terms please contact NAM's Majority Institution member (the election supervisor) by August 1. Make certain the nominated individual agrees to run, and serve if elected. Send vita data such as Name, email address, School, position, and date of last degree.

All members of the Board shall be elected to a term of office for a period of two years and elections shall be staggered for continuity. Regular elections shall occur in the fall of each year and the persons elected shall be duly installed at the first Annual NAM meeting following the election. The term of each elected position is three (3) years. The editor will be an appointed position for a period of three years. The Editor shall be responsible for the production of the Newsletter and shall perform such other duties as the Board of Directors may specify. The Executive Secretary shall be selected to serve for a period of five (5) years and shall begin the term of office at the Spring Board Meeting. His/her selection must be the unanimous choice of the existing Board of Directors.

The election of the members of the Board of Directors shall be by official ballots and shall be supervised by the Board of Director's Committee on Legislation-Nomination when the election is by mail, all current members in good standing in NAM shall be provided a ballot and given reasonable time to return it.

The year when positions commence is shown below. The elections are held in the year before. So in 2010 the election is held for the president's term beginning January 2011.

2009: Vice President; Region B representative; Majority Institution Representative.
2010: Secretary/Treasurer; Region C Representative; Community College Representative.
2011: President; Region A Representative; Government/Industry Representative
2012: Vice President; Region B representative; Majority Institution Representative.
2013: Secretary/Treasurer; Region C Representative; Community College Representative.
2014: President; Region A Representative; Government/Industry Representative
2015: Vice President; Region B representative; Majority Institution Representative.
2016: Secretary/Treasurer; Region C Representative; Community College Representative.
2017: President; Region A Representative; Government/Industry

Job Openings

Recall that for several years, NAM has had a web site with listings of open positions. This process is open to advertisers in the Newsletter. Advertisements too late for the publication date appear there. The remainder of the advertisements appear there six or more weeks before they appear in print in the Newsletter. See the editor's web site within MAD: http://www.math.buffalo.edu/mad/NAM/

Monroe Community College

Monroe Community College, located in Rochester, New York invites applications for Mathematics, Faculty Member Tenure-Track, Fall '08 position. We seek individuals who are versatile in their teaching and/or their professions, proficient with technology, open to change, passionate about learning, self-improvement, and committed to serving in various capabilities to realize the College's mission of student success. Duties include: Teaching mathematics courses from basic algebra through calculus, differential equations and linear algebra, including statistics and mathematics for non-science majors. Contribute to the department through department committees. Requirements include: A Master's degree in Mathematics, OR at least 18 graduate or post-calculus semester credits in mathematics with a Master's degree in Mathematics Education, Statistics or a closely related discipline from an accredited institution. Evidence that the Master's Degree has been awarded must be received by June 15. Ability to teach mathematics courses from basic algebra through calculus, differential equations and linear algebra, including statistics and mathematics for non-science majors. For full description, qualifications, and application instructions, please visit our website at http://jobs.monroecc.edu. Screening is to commence by February 15, 2008. AA/EOE/SUNY

National Association of Mathematics Membership Form

(For New Applications and Annual Membership Renewal)
Membership Calendar Year: January 1 - December 31

Name _____

Address _____

_____

Institution/Employer _____

Telephone: Home ( ) _____ Office ( ) _____

Fax ( ) _____ E-mail Address _____

Select Appropriate Membership Type

☐ Student : $30 ☐ Individual : $50 ☐ Contributing : $100

☐ Institutional : $150 ☐ Life : $500

PLEASE RETURN THIS COMPLETED FORM AND MEMBERSHIP DUES TO :

Dr. Roselyn Williams, Secretary-Treasurer
National Association of Mathematicians;
P.O. Box 5766
Tallahassee, Florida 32314-5766
Phone: (850) 412-5236 (O) **E-mail:** roselyn.williams@famu.edu

Individuals and Students: Please complete below if you did not send NAM this information within the past three years.

List all degrees you currently hold. Circle the correct degree.

B.S. or B.A.: Area _____ Institution _____
M.S. or M.A.: Area _____ Institution _____
Ph.D. or Ed.D.:Area _____ Institution _____
Other: Area _____ Institution _____

Desired Participation in NAM

☐ Institutional Representative (for NAM) Area or State Representative _____
☐ Committee Membership (specify interest): _____
☐ Need additional information about the organizational structure of NAM

Ethnicity:
African American ☐ Hispanic American ☐ White ☐ Other ☐ _____

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California
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Any state not in B or C

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District of Columbia
Kentucky
Maryland
New Jersey
New York
North Carolina
Pennsylvania
Virginia
W. Virginia

Region C:
Midwest/Southwest
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Spring 2008