



Adventures in Mathematics

--Math is Applicable

Adventures in Mathematics (AIM) is an annual event organized by the Department of Mathematics at Texas A&M University Commerce for high school math teachers and their students. They will be involved in hands-on activities in math, listen to talks on math careers, watch planetarium shows, tour campus, and experience a lunch in the student cafeteria. The purpose of AIM is to increase students' interests in learning Mathematics; and offer teachers examples, methods and stories which can be used in classrooms. High school teachers may receive a certificate of Continuing Professional Development Units upon request. Registration and lunch are free. High schools are responsible for their transportations to Commerce, TX.

For AIM, we also organize the Northeast Texas Algebra Competition (NTAC) at the level of algebra II. High school students led by their teachers are eligible to participate. Winners will receive a certificate and one of the following prizes. At the end of AIM, competition awards and door prizes will be presented.

- **First Place:** A TI-84, and \$60 Gift Certificate, and a scholarship of \$1,000
- **Second Place:** \$50 Gift Certificate, and a scholarship of \$800
- **Third, Fourth, Fifth Place:** \$30 Gift Certificate, and a scholarship of \$500
- **10 Honorable mentions:** \$10 Gift Certificate

(To receive the scholarship, a student must attend Texas A&M University Commerce as a fulltime math major.)

AIM will be held at Texas A&M University-Commerce, 9:00 AM -3:00 PM, Friday, February 14, 2014. The theme of AIM this year is "Math is Applicable." Presenters will show interesting and important applications of mathematics, and entertain and engage students in learning mathematics. To help us prepare sufficient food and parking permits, please RSVP by Thursday, February 6, 2014. Contact Dr. Tingxiu Wang (tingxiu.wang@tamuc.edu, or 903-886-5958) for questions.

- Where:** Sam Rayburn Student Center
Texas A&M University Commerce
Commerce, TX 75429
- 9:00am - 9:20am:** Registration
- 9:20am - 10:20am:** Northeast Texas Algebra Competition
- 10:30am -2:40pm:** Keynote presentation, Lunch, presentations, planetarium show, campus tour, and presentation by Texas Instruments.
- 2:40pm – 3:00pm:** Competition awards and door prizes
(winners need to be present for door prizes)



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9:00am—3:00pm, February 14, 2014

DESCRIPTION OF ACTIVITIES

NORTHEAST TEXAS ALGEBRA COMPETITION (NTAC), 9:20 AM – 10:20 AM

The Northeast Texas Algebra Competition (NTAC) is at the level of algebra II. Each school can have up to 10 students participating in NTAC with two backups. The backups may participate if there are extra clickers available. The rest of the students, including nonparticipating backups from the same school, can observe the competition. There will be 60 questions and students will have 20 seconds for each question. No pencils, paper or calculators are allowed during the competition. A student will work these questions in his/her head and submit answers with a “clicker.”

Keynote: Mathematics behind the Animation, 10:30 AM – 11:30 AM

“Animated movies are known for their stunning visuals and dynamic movement of characters. However, much work goes into creating one of these films. From Art to Animation to Rendering, we’ll discover how important mathematics is to all stages of making an animated movie.”

The keynote speaker, Mr. Kevin Singleton is a Character Technical Director at Pixar Animation Studios. A native Texan, Singleton is a 2002 graduate of Texas A&M University in Computer Science. He interned at Pixar from January to August 2005, then returned to College Station to complete the coursework for a Masters in Visualization Sciences. He started full-time at Pixar in January, 2006. His film credits include *Ratatouille* (2007), *Wall•E* (2008), *Toy Story 3* (2010), *Cars 2* (2011), *Brave* (2012), and the upcoming films *The Good Dinosaur* and *Finding Dory*. Kevin had a short film “Finders’ Keepers” that was accepted for showing at the 21st International Short Film Festival in Berlin (2005).

The following activities will be held at the same time for 50 minutes and repeat once.

Presentation I: Mathmagics, presented by Mr. Joshua Patterson

Description: We will perform a number of magic tricks that, unlike magic, do not rely on deception but rather rely on the axioms of Mathematics. Come and be part of the fun!

Presentation II: “Maximum Thrill, No Kill!” presented by Ms. Lymeda Singleton

Description: Bungee Barbie and Kamikazee Ken want to bungee jump from the second floor balcony to the first floor. Based on data collected, your team will determine the number of rubber bands to tie together so that Barbie and Ken can experience “Maximum Thrill” with “No Kill.” The team whose doll comes closest to the ground without hitting it will receive prizes.

Planetarium Show: Black Holes: the Other Side of Infinity

Prepare to be dazzled with striking, immersive animations of the formation of the early universe, star birth and death, the collision of giant galaxies, and a simulated flight to a super-massive black hole lurking at the center of our own Milky Way Galaxy. Narrated by Academy-Award nominated actor Liam Neeson, this cutting-edge production features high-resolution visualizations of cosmic phenomena, working with data generated by computer simulations, to bring the current science of black holes to the dome screen.