Math & C.S. Colloquium

The automotive industry is currently in the process of a dramatic change. Sensors, which use advanced algorithms, are enabling vehicles to negotiate the road environment with increasingly higher degrees of autonomy. These Advanced Driver Assistance Systems rely heavily on mathematical and statistical models, as well as machine learning algorithms. In their talk, **Dr. Ryan Jones** and **Kyle Kolasinski**, Algorithm Engineers at Continental Automotive in Detroit, will introduce the audience to the state of the art technology, with a particular focus on the mathematics that is involved. These models will be demonstrated visually using real world data, so that the talk is digestible to any student with an interest in this evolving field.

"The Mathematics Behind Advanced Driver Assistance"

Presenters: Dr. Ryan Jones & Kyle Kolasinski
Date: **Thursday, October 20th**
Time: 4:00
Place: SAC 113

Refreshments at 3:50.

Important Meeting for Seniors

All senior math and computer science majors, who intend to graduate this year, are required to attend a meeting on **Thursday, October 13th** at 4:00 in SAC 216. At this meeting we'll provide details about the MFAT as well as the written and oral components of the senior comprehensive.

New NS-3 Course in Winter: Data Mining

Data mining is the study of methods for gathering information and making predictions from large sets of data. We will study several types of data mining, including classification, regression, clustering, and dimension reduction. We will apply each method to real data from various fields, such as business and medicine. The course will include computer assignments, using the programming language R. Each student will also perform a final project involving a real data set of the student's own choosing. Prerequisite is MTH 100 or placement. *This course will count towards the math minor.*

MATH Challenge on November 5th

Y ou are invited to participate in the 22nd annual MATH Challenge, held on **Saturday, November 5th**. The **MATH Challenge** is a *team-oriented*, 3-hour exam consisting of ten interesting problems dealing with topics found in the under-graduate math curriculum. Teams consist of 2 or 3 students, and you'll take the exam on campus from 9:30 am to 12:30. You may form your own team or you can simply be placed on a team. If you're interested, contact Professor Sipka.

Actuaries and Software Developers

While exploring career paths and internship opportunities at the Career Explo on Friday, Oct. 7, one thing became abundantly clear. Many jobs that require a bachelor's degree in mathematics fall into the realm of actuarial sciences and software development. So, here's a bit more about them.

Actuaries manage risk. They crunch the numbers, predict future expenses, and help protect companies from loss. In the insurance industry a lot of work has to do with predicting the number of claims to be filed and the amount of money paid out. The median pay for these positions is around $97,000 per year and the employment rate of actuaries is projected to grow by 18% over the next ten years.

Software developers design, create and upgrade computer programs. The average pay for this position is just over $100,000 per year. Also very similar to that of actuaries, it looks as though employment of software developers will raise 17% in the next ten years.

Anyone majoring in math, or looking to major in math, should consider these jobs. There are several other career possibilities, but these appear to be the most common opportunities. *Cheyenne Kalfsbeek*
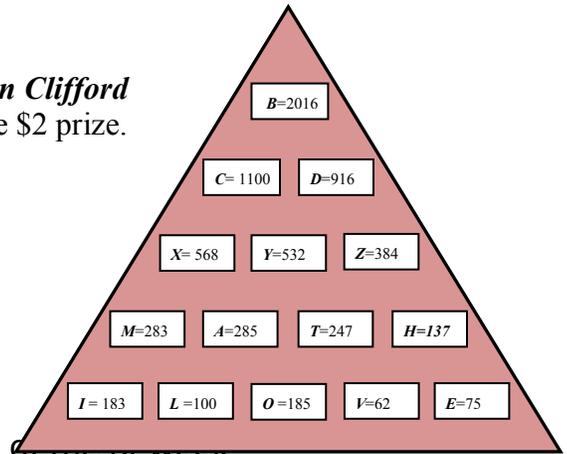
Math Club

T he Math Club meets on Tuesday evenings at 9 pm in Dow 137. *Everyone is welcome!*

Solution to Previous Puzzle

E very box in the triangle contains a number that is the sum of the two numbers below it. For example, $B = C + D$. Find the missing numbers.

Gannon Clifford won the $2 prize.

Pyramid triangle: B=2016; C=1100, D=916; X=568, Y=532, Z=384; M=283, A=285, T=247, H=137; I=183, L=100, O=185, V=62, E=75

Puzzle of the Week

S uppose you're standing next to a pyramid with a square base, 80 feet on a side. The distance from each corner of the base to the top is 70 feet. You want to start at some point along the square and walk up a face in a straight line to the top of the pyramid so that your path makes a $45°$ angle with the ground. How far from the corner of the base should you start?
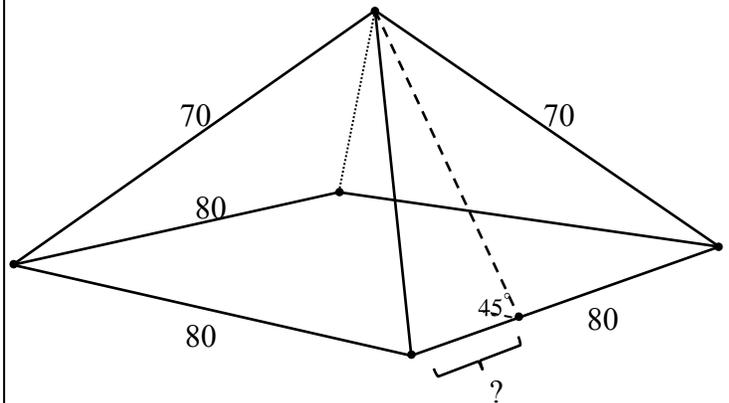
A prize of **$2.00** will be awarded to the 1st student who submits a correct solution to Prof. Sipka.