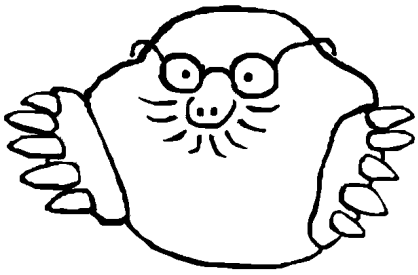

Math Mole

June 21, 2007 *Thursday/Testday* Volume 2, No. 4

This issue

Puzzles:

One: How many times can you subtract 6 from 30?

Two: A Riddle:

I have a heart that never beats,

I have a home but I never sleep.

I can take a man's house and build another's,

And I love to play games with my many brothers.

I am a king among fools.

Who am I?

Three: On the back

Mathematician of the Day

René Descartes (March 31, 1596 - February 11, 1650)

- recognized as the "Father of Modern Philosophy" and the "Father of Modern Mathematics" (key figure in the Scientific Revolution)
- invented the Cartesian coordinate systems which is used to determine each point of a plane through two numbers normally called the x-coordinate and y-coordinate
- founded analytic geometry, the gap between algebra and geometry (necessary for the invention of calculus and analysis)
- regarded as the first modern thinker to provide philosophical structure for the natural sciences; in his "Discourse on the Method", he attempted to arrive at a fundamental set of principles that one can know as true without any doubt and to achieve, he employed a method called methodological skepticism (reject any idea which can be doubted in order to acquire a firm foundation for genuine knowledge)
- "cogito, ergo sum" (I think, therefore I am) philosophical statement used by Descartes which became a foundational element of Western philosophy
- known also for Descartes's rules of signs, a method used to determine the possible quantities of positive and negative zeros of a function

Info from `http://en.wikipedia.org/wiki/Descartes` Photo from `http://en.wikipedia.org/wiki/Image:Descartes.jpg`

Reading Assignment:

Continue reading Chapter 3. Start 4.1.

Mathematics Spotlight: Millennium Prize Problems

The Clay Mathematics Institute is best known for its establishment on May 24, 2000 of Millennium Prize Problems. These seven problems are considered by CMI to be "important classic questions that have resisted solution over the years". The first person to solve each problem will be awarded $1,000,000 by the CMI. In announcing the prize, CMI drew a parallel to Hilbert's problems, which were proposed in 1900, and had a substantial impact on 20th century mathematics. Of the initial twenty-three Hilbert problems, most of which have been solved, only one (the Riemann hypothesis, formulated in 1859) is one of the seven Millennium Prize Problems.

The problems are:

1. P versus NP
2. The Hodge conjecture
3. The Poincaré conjecture
4. The Riemann hypothesis
5. Yang-Mills existence and mass gap
6. Navier-Stokes existence and smoothness
7. The Birch and Swinnerton-Dyer conjecture

As of currently, the Poincaré conjecture has been solved. A solution was proposed by Grigori Perelman in 2003; its review was completed in August 2006, and Perelman was awarded the Fields Medal for his solution. Perelman declined the award.

Sources: Wikipedia `http://en.wikipedia.org/wiki/Millennium_Prize_Problems`, Millennium Prize Problems `http://www.claymath.org/millennium/`