



Math Mole

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thursday

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- Today's Editor: David
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Puzzles:

One: Frank weighs half as much as John, and Hubert weighs three times as much as Frank. Their combined weight is 720 pounds. How much does each man weigh?

Two: Until I am measured, I am not known. Yet how you miss me, When I have flown. Who am I?

Mathematician of the Day



Al-Khwarizmi, Baghdad Circa 780-850

- Sarton writes: "... the greatest mathematician of the time, and if one takes all the circumstances into account, one of the greatest of all time...."
- Al-Khwarizmi is credited with writing the first book of Algebra, titled *Hisab al-jabr w'al-muqabala*, from which we contrive the word "Algebra." (It is also the root of the word "algorithm").
- He was a member of the Banu Musa, who were the scholars of the house of House of Wisdom in Baghdad.
- As well as studying algebra, they researched in the areas of geometry, and astronomy and actually composed a treatise on their astronomy work.
- Al-Khwarizmi formed a geometric proof for completing the square; however, scholars disagree on whether he had access to Euclid's Elements.
- Al-Khwarizmi also wrote an extensive work of geography, which was more accurate than Ptolemy's Geography.

Info From: The MacTutor History of Mathematics archive:
<http://www-groups.dcs.st-and.ac.uk/~history/Biographies/Al-Khwarizmi.html>

Reading Assignment:

For tomorrow read Sections 2.1 and 1.4

Mathematics Spotlight: Complex Roots

Finding complex roots (without a calculator!) can be a pain. If you try to graph a quadratic with complex roots, you'll end up with no x-intercepts. In this case, you can flip the parabola vertically (either in your mind or on paper). Now find the x-intercepts, which are hopefully whole numbers. Rotate these points ninety degrees to the right around where the axis of symmetry meets the x-axis. The coordinates of these two points (on the complex number plane) are the roots of the equation.

Info from: Su, Francis E., et al. "Complex Roots Made Visible." Mudd Math Fun Facts. <<http://www.math.hmc.edu/funfacts>>.

Mathematics Spotlight: Wolfskehl Prize

Paul Wolfskehl (1856-1906), a mathematician, who, according to numerous stories, attempted to commit suicide when the love of his life (at least in his mind) turned him down. The night of his planned suicide, while studying in the library, he had become so distracted in discovering an error in an attempted proof to Fermat's Last Theorem* that he stayed up the whole night and, as a result, decided not to kill himself after all. In this case he proved to himself that his love for mathematics was far greater than the love of his life.

Tearing up all suicide notes, he resulted in motivating the mathematical community by offering 100,000 Marks to anyone that could produce a proof that would finally at last prove Fermat's Last Theorem*. If not for the creation of this prize, Fermat's Last Theorem might not have ever been proved, and many mathematical concepts, such as the Taniyama-Shimura conjecture, would not have been discovered until much later.

* $x^n + y^n = z^n$ has no integer solutions when $n > 2$.

Sources: Wikipedia and http://www.simonsingh.net/Wolfskehl_Prize.html