



Math Mole

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Flu Season?!

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Quotes:

You have your way. I have my way. As for the right way, the correct way, and the only way, it does not exist. – Friedrich Nietzsche

If you built castles in the sky; your work need not be lost; that is where they should be. Now, put the foundations under them. –Henry David Thoreau

Puzzles:

Crates of fruit: You are on an island and there are three crates of fruit that have washed up in front of you. One crate contains only apples. One crate contains only oranges. One reads "apples," one reads "oranges," and one reads "apples and oranges." You know that NONE of the crates have been labeled correctly - they are all wrong. If you can only take out and look at just one of the pieces of fruit from just one of the crates, how can you label ALL of the crates correctly?

Divisible: Find a number consisting of 9 digits in which each of the digits from 1 to 9 appears only once and with the property that the number consisting of the first n digits is divisible by n for $n = 1, 2, \dots, 9$.

Mathematician of the Day



Leonardo Pisano or Fibonacci - Pisa, Italy 1170-1250

- Fibonacci is considered by some "the most talented mathematician of the Middle Ages."
- Leonardo was born in Pisa, Italy in about 1170. His father Guglielmo was nicknamed Bonaccio ("good natured" or "simple"). Leonardo's mother, Alessandra, died when he was nine years old. Leonardo was posthumously given the nickname Fibonacci (derived from filius Bonacci, meaning son of Bonaccio).
- His father Guglielmo directed a trading post in Bugia, a port east of Algiers in the Almohad dynasty's sultanate in North Africa (now Bejaia, Algeria). As a young boy, Leonardo traveled to the Middle East where he learned Arabic numerals.
- His work Liber Abaci, or Book of Calculation, was the first major work to use Arabic numerals rather than Roman numerals.
- Leonardo became an amicable guest of the Emperor Frederick II, who enjoyed mathematics and science. In 1240 the Republic of Pisa honored Leonardo, referred to as Leonardo Bigollo, by granting him a salary.
- He is known for the invention of the Fibonacci sequence of numbers, in which each number is the sum of the previous two numbers, starting with 0 and 1. The ratio of two consecutive Fibonacci numbers converges on the golden ratio (approximately 1:1.618) as its limit.
- The Fibonacci sequence is referenced in Dan Brown's The Da Vinci Code, and is the basis for the time signatures and word choice (number of syllables in each line) of progressive rock band Tool's song "Lateralus" of the album of the same name.

Info From: <http://en.wikipedia.org/wiki/Fibonacci>
<http://www.gap-system.org/history/Biographies/Fibonacci.html>

Picture From: <http://www.gap-system.org/history/BigPictures/Fibonacci.jpeg>

Career Spotlight: Surveyor

Job Description: Surveyors measure and draw what the earth's surface looks like. Surveyors do different types of work. Some measure land, air space, and water areas. They describe where a certain area of land is. They explain what it looks like, and how much is there. They put these facts in deeds, leases, and other legal documents. They also define air space for airports. In addition, they measure construction and mineral sites. Surveyors might lead survey parties (or surveying projects). This job extends to many different jobs such as Geodetic Surveyors, cartographers, geographic information specialist, and such.

Education: To become a surveyor, you need training and you need to pass tests. Most surveyors need a 4-year college degree. You need basic algebra, geometry, trig, drafting, mechanical drawing, and computer science skills.

Work Condition: They spend a majority of their time outdoors surveying the land. For those surveyors such as cartographers, their time is spent in their office generating maps and such using computers. They prepare reports, which will be used to determine the maps that are to be drawn.

Salary: The average surveyor makes between \$35,720 and \$63,990 in 2006. The lowest 10% were paid less than \$26,690 and the top 10% earned more than \$79,910. Generally, surveying and mapping technicians made less than the average surveyor did and the cartographer made more.

Job Outlook: As time goes on, the number of jobs for surveyors will increase more than the average job. These jobs range from working for firms to being self-employed.

Source: <http://www.bls.gov/k12/math03.htm>