



# Math Mole

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- Today's Editor: Rohit
- Career Spotlight: Jill
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## Quotes:

*I rarely go any place where there is no mathematics.*

—P. Erdős

*I never did very well in math - I could never seem to persuade the teacher that I hadn't meant my answers literally.*

—Calvin Trillin

**Puzzle1:** Show that, for all positive integers  $m$  and  $n$ ,  $mn(m^4 - 20 - n^4)$  is divisible by 446617991732222310.

**Puzzle2:** If  $x$  and  $y$  are positive real numbers, show that  $x^y + y^x > 1$ .

## Mathematician of the Day



Aryabhata I (the Elder), 476–550, India

- Aryabhata I was an Indian mathematician who wrote the Aryabhatiya which summarizes Hindu mathematics up to that 6th Century.
- Aryabhata gave 3.1416 as the value for  $\pi$ .
- He stated that the circumference of the Earth was 24,835 miles, which is an excellent approximation to the currently accepted value of 24,902 miles.
- His value for the length of the year at 365 days 6 hours 12 minutes 30 seconds is extremely close to the real value which is 365 days 6 hours.

**Today:** 7.2, Prep for Exam 4, Open Lab

**Tuesday:** Exam 4, World Cup Event 4, Open Lab

## Career Spotlight: Cost Estimator

**Job:** Cost estimators figure out how much a project or product will cost. This helps business owners and managers decide whether to build a structure or manufacture a product. If a business doesn't think it can make enough money, it will not do it. Cost estimators also find out which jobs are making a profit. The exact method of figuring out the cost varies, depending on the industry in which you work. They study information on all of the things that can change the cost of a project. This includes supplies, labor, location, and special equipment, like computer hardware and software.

**Education:** How to prepare for this occupation depends on the industry in which you want to work in. In construction, employers want people with a college degree in building construction, construction management or science, engineering, or architecture. In manufacturing, employers prefer to hire individuals with a degree in engineering, physical science, operations research, mathematics, or statistics. They can also have a degree in accounting, finance, business, economics, or a related subject. Math and computer skills are very important. Strong communication and analytical skills are also important. Cost estimators must present their estimates to supervisors and others.

**Pay:** Salaries of cost estimators may vary widely by experience, education, and the size of their employer. The middle half earned between \$38,420 and \$65,620 in 2004. The lowest-paid 10 percent earned less than \$30,240, and the highest-paid 10 percent earned more than \$84,870.

**Future:** The number of cost estimators is expected to grow faster than the average for all occupations through the year 2014. Jobs should be best for those with work experience and a bachelor's degree in a related field. The expected increase in construction and repair projects on buildings, roads, airports, and other structures will lead to more jobs for estimators. This means that the best job opportunities will be in the construction industry.