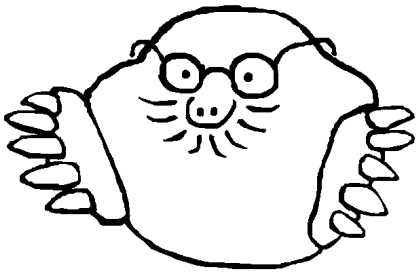


Math Mole

June 26, 2008 *I can see the end!* Volume 3, No. 4

This issue

Joke:

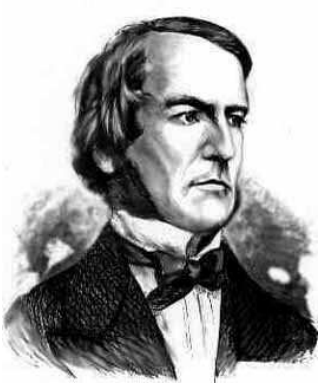
What do you get if you divide the circumference of a jack-o-lantern by its diameter? Answer: Pumkin Pi

Puzzles:

One: A set of football matches is to be organized in a "round-robin" fashion, i.e., every participating team plays a match against every other team once and only once. If 45 matches are totally played, how many teams participated?

Two: A block of wood in the form of a rectangular prism 4" x 7" x 12" has all its six faces painted pink. If the wooden block is cut into 336 cubes of 1" x 1" x 1", how many of these would have pink paint on them?

Mathematician of the Day



George Boole (1815-1864)

- Born in the English industrial town of Lincoln, Boole was lucky enough to have a father who passed along his own love of math. Young George took to learning like a politician to a pay rise and, by the age of eight, had outgrown his father's self-taught limits.
- Over the next few years, he mastered the most intricate mathematical principles of his day.
- By 1844 he was concentrating on the uses of combined algebra and calculus to process infinitely small and large figures, and, in that same year, received a Royal Society medal for his contributions to analysis.
- Unfortunately, Boole's life was cut short when he died of a 'feverish cold' at the age of 49, after walking 2 miles through the rain to get to class and then lecturing in wet clothes.

Info From: `http://www.kerryr.net/pioneers/boole.htm`

Math Spotlight: 0

Zero as we know it today is the number with no value. It sits along with everyday numbers seeming useless and impractical; what's the point of buying zero apples? But in truth, there has never been a number as influential in history with as profound a mathematical consequence as zero.

Zero is first seen around 800-700 BCE in Babylonian cuneiform tablets. It originated as a placeholder in the Babylonian hexagismal (base-60) place value number system. Before the invention of the placeholder that is the precursor to zero, the Babylonian system of numbers offered no way to differentiate between one place value and another; the wedges for 2 could also represent 61, 120, 3660, etc. While at first this problem could almost always be fixed by observing context, as the Babylonians advanced into more complicated mathematics (such as in Astronomy), the need to differentiate between big numbers became necessary, and zero was born.

The most famous mathematicians of the Ancient Era, the Greeks, had no zero. Greek mathematics was more or less pictorial in nature; numbers were shapes, and the most beautiful numbers were beautiful geometries. Zero had no place in this world, as it has no shape, and because of this, Philosophers and mathematicians alike shunned zero. However, the Greek number system was cumbersome and required massive amounts of writing; the merchants of the time had great difficulty in keeping up with their assets with the Greek number system, so they would convert their calculations to the Babylonian system with zero, and converted the result back to Greek.

Zero also developed in other places throughout the world. In India, there is evidence of a mathematical placeholder as early as 200 CE. Around 650 CE, this place holder evolved into the first form of the true number zero. But with zero being used as a number, naturally, there follows the problems that inevitably come with zero. The famous Indian mathematician Brahmagupta struggled with the uses of zero, particularly in division, as illustrated by a statement in his book Brahmasphutasiddhanta that 0/0=0, which we know today is false. However, despite the complications, the use of zero as a number stuck and spread to the Arabs and the Chinese.

After the fall of Rome and the rise of the Catholic Church, any use of zero died in Europe. Its rejuvenation in European mathematics rests in large part on the shoulders of a famous Italian mathematician. Leonardo Fibonacci brought the zero omnipresent in Asian mathematics to Europe. However, he did not treat it like a true number; zero was too different. Only in the 1600s did zero become the useful, yet problematic number we have today.

Prove Winston Churchill was a carrot

Let $a = b = 1$

$a^2 = b^2$

$a^2 = ab$

$a^2 - b^2 = a^2 - ab$

$(a + b)(a - b) = a(a - b)$

$a + b = a$

$b = 0$

$1 = 0$

Winston Churchill has 1 head, so he has 0 heads He has 0 leafy tops, so he has 1 leafy top (Multiply both sides by 2; 2=0) He has 2 arms and 2 legs, therefore, he has 0 arms and 0 legs (Multiply result 1=0 by Churchill's waist size) Churchill's waist size =0, therefore, he tapers to a point (Multiply result 1=0 by 1.Churchill's color wavelength, and 2. 640nm, the wavelength of orange light) Churchill's color wavelength is 0, therefore it is 640. He is orange. Winston Churchill has no head, arms, or legs; he has a leafy top, tapers to a point, and is orange. Clearly, Winston Churchill is a carrot.

http://www-history.mcs.st-and.ac.uk/HistTopics/Zero.html

Charles Seife Zero: Biography of a Dangerous Idea