

Blaise Pascal, Great French Mathematician

Born: Clermont-Ferrand, Auvergne, France, June 19, 1623 AD, Died: Paris, August 19, 1662

A sickly child whose father, a mathematician as well, decided to deny Pascal any mathematics books so he could study ancient languages. Pascal asked about Geometry, and when it was described to him as the study of shapes, he self-taught himself a good deal of the subject. Finally, the father, realizing what he had with his son, gave in and let him study mathematics.

When he was 16, he published a book on the geometry of the conic sections that extended the work of Apollonius, some 19 centuries earlier. Descartes refused to believe that a 16 year old had written the book, and Pascal in turn derided the value of Descartes' Analytic Geometry. Boy, talk about math hissy-fits!

In 1642, at the age of 19, Pascal invented a working calculating machine that used cogs and wheels. He sent a copy of it to Queen Christina of Sweden. He patented it, and hoped to make some money from it, but it was too complicated to mass produce. However, it is the precursor of the modern cash register. In the 20th century, a computer language, PASCAL, was named after him for his early work in calculating.

Pascal, working with Fermat, helped a gambler with a puzzle that he had, and developed the original branch of mathematics we now call Probability Theory. Pascal, working in the field of physics, showed that pressure of fluid in a closed system is uniformly transmitted at right angles to all surfaces it touches. This became known as Pascal's principle and is the basis for the hydraulic press. He also did some work on the barometer and atmosphere with Torricelli.

Sickly, all his life, Pascal passed away shortly after his 39th birthday. Below, is an invention named for him called Pascal's Triangle. Each number is derived by adding the two numbers above right and above left to it. Start each line with a "1" and end it with a "1". Actually this could be found by saying $1 + 0 = 1$.

Row	Pascal's Triangle	Sum	Power of 2
0	1	1	2^0
1	1 1	2	2^1
2	1 2 1	4	2^2
3	1 3 3 1	8	2^3
4	1 4 6 4 1	16	2^4
5	1 5 10 10 5 1	32	2^5
6	1 6 15 20 15 6 1	64	2^6
7	1 7 21 35 35 21 7 1	128	2^7

Add 2 numbers above left and right Sum = 2^{Row}

There will be an analysis of this on Friday, of next week, in the Applications section.