

# Pascal's Triangle

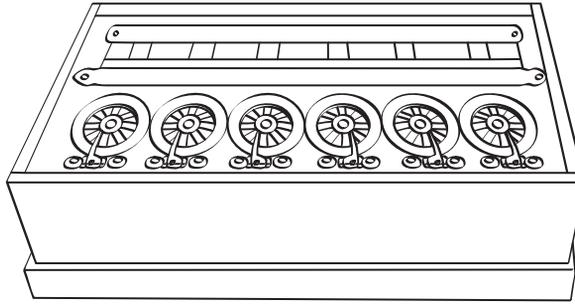
**Blaise Pascal** was born in 1623 in Clermont-Ferrand, France. His mother died when he was a toddler and he was raised by his father, Etienne, who was a lawyer and an amateur mathematician. His father had some unconventional ideas about teaching and believed that Pascal should not be educated in Mathematics before the age of 15. The latter, nevertheless, was fascinated by the subject and studied Geometry on his own.

By the age of 12, Pascal discovered that the sum of the three interior angles of a triangle equals to two right angles, or  $180^\circ$ . When he was 16, his father was given the job of a tax collector. Etienne always brought his son along to meet up with different mathematicians. Pascal presented his ideas to these mathematicians and they were all amazed at his talent in Mathematics.

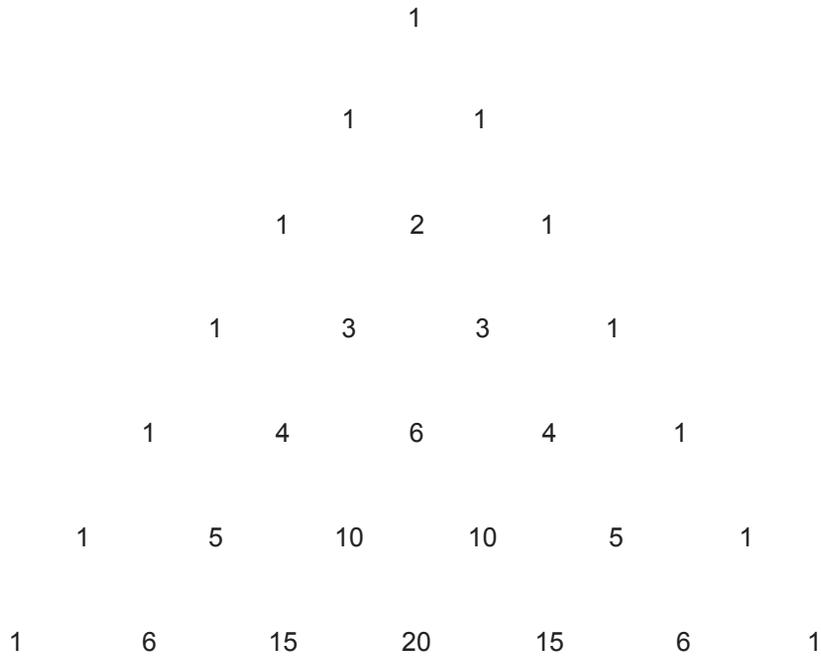


A year later, Pascal published his first book on Geometry. By the age of 22, he had already invented a mechanical calculator, called the Pascalline, to assist his father in the calculation of currency. He also managed to sell 50 of such Pascallines and made some money.

Blaise Pascal was best known for his contribution to the Number Theory, the study of Whole Numbers, and Probability, which is the study of 'chance'. Triangular Numbers have been around since the 12<sup>th</sup> century and have a variety of other names. In Italy, they are collectively called Tartaglia's Triangle. In many parts of Asia, it is known as Yang Hui's Triangle, who probably investigated the formulation in the 12<sup>th</sup> century as well. The Yang Hui's Triangle later appeared in Chu Shih-Chieh's book again circa 1303.



Beginning with '1' as the peak of the triangle, the Pascal's Triangle is easy to construct. The first and last numbers of the subsequent rows are 1s, too! Each of the rest of the numbers is the sum of the two numbers immediately above it. For example, 2 in the third row is the sum of the two 1s above it, 3 in the third row is the sum of 1 and 2 above it, and so on.



The reader may care to attempt the 8<sup>th</sup> and 9<sup>th</sup> rows.