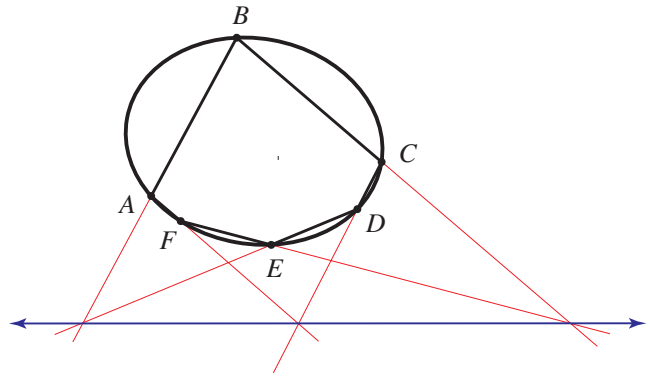


Blaise Pascal

and his Mystic Hexagram

John Martin
Santa Rosa Junior College
jmartin@santarosa.edu



Some Milestones in Pascal's Life

- 1623 Birth (June 19th)
- 1639 Presents a paper containing the Mystic Hexagram to Mersenne's group
- 1642 Invents the Pascaline
- 1647 Publishes *New Experiments Concerning Vacuums*
- 1654 Corresponds with Fermat on the problem of the division of stakes
- 1654 Dedicates himself to religious contemplation
- 1657 Publishes the *Provincial Letters*
- 1662 Death (August 19th)
- 1665 Posthumous publication of the *Treatise on the Arithmetic Triangle*
- 1669 Posthumous publication of the *Pensées*

Some Websites worth exploring

How the Pascaline Works

<http://www.youtube.com/watch?v=3h71HAJWnVU>

Pascal's Wager

<http://www.iep.utm.edu/pasc-wag/>

The Complete Pascal Figure

<http://www.math.uregina.ca/~fisher/Norma/index.html>

Treatise on the Arithmetic Triangle

http://www.cs.xu.edu/math/Sources/Pascal/Sources/arith_triangle.pdf

Slides Used in the Presentation:

<http://online.santarosa.edu/homepage/jmartin/>

Scroll to the bottom for a link to a folder containing a PDF of the slides.

Pascal's Mystic Hexagram

Theorem: If six arbitrary points are chosen on a conic section and joined by line segments in any order to form a hexagon, then the three pairs of opposite sides of the hexagon meet in three points that lie on a straight line.

The complete Pascal figure consists of:

- 60 Pascal lines
- 45 Diagonal points
- 20 Steiner points
- 60 Kirkman points
- 15 Plücker lines
- 20 Cayley lines
- 15 Salmon points

Each diagonal point has 4 Pascal lines.

Each Steiner point has 3 Pascal lines.

Each Kirkman point has 3 Pascal lines.

Each Pascal line contains

- 3 Diagonal points
- 1 Steiner point
- 3 Kirkman points

Each Plücker line contains

- 4 Steiner points

Each Cayley line contains

- 1 Steiner point
- 3 Kirkman points

Each Salmon point has 4 Cayley lines