BRIEF HISTORICAL NOTES for Brannan's: *A First Course in Mathematical Analysis*

Page	
ix	**Johann Wolfgang von Goethe** (1749-1832) is said to have studied all areas of science of his day except mathematics - for which he had no aptitude.
ix	Calculus was invented independently by **Sir Isaac Newton** (1643-1727), an English mathematician, astronomer, physicist, President of the Royal Society and Master of the Royal Mint, and **Gottfried Wilhelm Leibniz** (1646-1716), a German philosopher, logician, mathematician and scientist.
x	**Karl Theodor Wilhelm Weierstrass** (1815-1897) was a German mathematician who made crucial contributions to Analysis and the Calculus of Variations; he is sometimes called 'the father of Modern Analysis'.
xi	**Georg Friedrich Bernhard Riemann** (1826-1866) was a German mathematician in Göttingen, who made major contributions to Analysis and Number Theory, and conjectured the Riemann Hypothesis (still one of the major challenges in mathematics).
5	The Swiss-German mathematician and physicist **Johann Heinrich Lambert** (1728-1777) proved that π is irrational in 1768.
7	**Archimedes** (c. 287 BC - 212 BC) was a Greek geometer and physicist who used many of the basic limiting ideas of differential and integral calculus.
20	**Jacob Bernoulli** (1654-1705) was a Swiss analyst, probabilist and physicist, the most distinguished of a large family of mathematicians. He discovered the number e.
20	**Augustin-Louis Cauchy** (1789-1857) was a prolific French mathematician and physicist who was an early pioneer of rigorous Mathematical Analysis.
20	**Hermann Amandus Schwarz** (1843-1921) was a noted German complex analyst.
37	**Georg Ferdinand Ludwig Philip Cantor** (1845-1918) was a German mathematician who contributed to Analysis and Topology, and was the founder of Set Theory.
37	**Julius Wilhelm Richard Dedekind** (1831-1916) was a German mathematician who contributed to Algebra and developed a formal construction of $\mathbb{R}$.
70	**Bernhard Placidus Johann Nepomuk Bolzano** (1781-1848) was a Czech analyst, who wished to put all of mathematics on a strictly logical foundation.
78	**Euclid** (c. 325 BC – c. 265 BC) was a mathematician in Hellenistic Alexandria during the reign of Ptolemy I (323 BC - 283 BC), famous for his book *The Elements*.
83	**Zeno of Elea** (c. 490 BC – c. 425 BC) is best known for his paradoxes.
197	**Johann Peter Gustav Lejeune Dirichlet** (1805-1859) was a German mathematician who made major contributions to algebra, number theory, analysis and mathematical physics.
231	**Michel Rolle** (1652-1719) was a French analyst, algebraist and geometer. He proved Rolle's Theorem in 1691.
241	**Guillaume François Antoine Marquis de l'Hôpital** (1661-1704), was a French geometer and analyst who wrote the first textbook on differential calculus, and bought the rights to this theorem from its discoverer, the Swiss mathematician **Johann Bernoulli** (1667-1748).
244	The name *blancmange curve* was given to the graph by **John Trevor Stanton Mills** (1932-2008) (Warwick University) in 1982 on the grounds that the function is not differentiable because its graph 'wobbles so much'. It was first studied by the Japanese mathematician **Teiji Takagi** (1875-1960) in 1903.

254	**Jean Gaston Darboux** (1842-1917) was a French analyst and differential geometer, best known for introducing the Darboux integral in 1870.
295	**John Wallis** (1616-1703) was an English theologian, logician, cryptographer and algebraist, the most influential English mathematician before Newton. He published this formula in 1656.
297	**Colin Maclaurin** (1698-1746), Scottish mathematician and physicist at Aberdeen and Edinburgh, was an advocate of Newton's approach to the Calculus.
300	**Leonhard Euler** (1707–1783) was a prolific Swiss analyst and physicist, who worked for Frederick the Great of Prussia and Catherine the Great of Russia even after becoming blind.
306	**James Stirling** (1692-1770), Scottish mathematician expelled from Oxford University for his Jacobite sympathies, worked on infinite series and gravitation, and became manager of the *Scots Mining Company,* Leadhills. He published this formula in 1730.
317	**Brook Taylor** (1685-1731) was an English mathematician who published a book in 1715 that included approximation by these polynomials. They were also discovered independently by James Gregory, Isaac Newton, Gottfried Wilhelm Leibniz, Johann Bernoulli and Abraham de Moivre.
329	**Friedrich Wilhelm Bessel** (1784-1846) was a German astronomer, who calculated the orbit of Halley's comet and determined the ellipticity of the Earth to be approximately 1/299.
333	**Neils Henrik Abel** (1802-1829) was a Norwegian analyst and algebraist, who proved the insolubility of quintic equations in 1824.
347	**James Gregory** (1638-1675) was a Scottish algebraist and astronomer, who distinguished convergent and divergent series and anticipated the study of differential and integral calculus.

347	3rd last margin note, reading "This is known as *Sharp's Formula*."	**Abraham Sharp** (1653-1742) was an English mathematician and astronomical instrument maker, who calculated π to 71 decimal places. He led an unstructured life often forgetting to take his meals.
347	Last margin note "This is known as *Machin's Formula*."	**John Machin** (1680-1751) used this formula to calculate the first 100 decimal places of π. He was private tutor to Brook Taylor.
348	2nd margin note	**Carl Louis Ferdinand von Lindemann** (1852-1939) was a German analyst and geometer. He taught the famous German mathematician **David Hilbert**.

In addition, the Internet contains vast amounts of information on the history of Mathematical Analysis that can be found using a search engine such as Google. These sources include: the well-organised St Andrews-based MacTutor Archive; the huge Wikipedia website, with its many links; and sites maintained by many groups and individual authors. *Web users MUST bear in mind that, while many sites contain many wonderful articles, most are not refereed/checked and may contain minor or major errors!*

- *MacTutor History of Mathematics Archive,* created by John J. O'Connor & Edmund F. Robertson:
  http://www-history.mcs.st-and.ac.uk/
- *Wikipedia*, Wikimedia Foundation:
  http://en.wikipedia.org/wiki/Main_Page
- **Mathematics Genealogy Project**, founded by Harry Bernard Coonce (1997); Mathematics Department, North Dakota State University, ND & American Mathematical Society, Providence, RI;
  http://www.genealogy.ams.org/