Christianity and the History of Mathematics

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- **Disclaimer**

  I am not a mathematician. In this paper I'll be pointing out some facts that I noticed while filling in gaps in my knowledge of mathematics. The gaps are still considerable.

- **Many great mathematicians have been strong Christians.** This weighs against the frequent claim that Christianity is illogical.

  Blaise Pascal (1623–1662)
  Probability, combinatorics, computing machine
  Mystical experience Nov. 23, 1654
  Pensées (unfinished defense of Christianity)
  Pascal's Wager

  Sir Isaac Newton (1642-1727)
  Calculus, universal gravitation
  'Qui humanum genus ingenio superavit'
  Wrote books on Biblical chronology and on the prophecies of Daniel and the Book of Revelation

  Leonhard Euler (1707–1783)
  Combinatorics, number theory, etc.
  Graph theory (Königsberg bridge problem)
  Works include a defense of the divine origin of the Bible

  Augustin-Louis Cauchy (1789–1857)
  Limits, continuity
  Wrote Christian poetry

  Georg Cantor (1845–1918)
  Set theory, infinite sets (generally rejected in his own time, now considered fundamentally important)
  Devout Catholic
  Expected theory of infinite sets to be useful in philosophy and theology

  D. E. Knuth (contemporary)
  Theory of algorithms; computer typesetting
  Recent book titled '3:16' giving cross-sectional view of Bible

- **Mathematics as a profession is conducive to Christian faith.**

  – Logical, independent thought

  – Honesty (because you can't do math any other way)

  – Lack of arrogance (compared to other sciences)

  – Lack of 'chronological snobbery'

- **Faith is involved in mathematical thinking.**

  There are areas of mathematics whose logical basis is not fully understood.

  Example: in Newton and Leibniz's calculus, $dy/dx = \Delta y/\Delta x$ when $\Delta x = 0$

  Illogical division by zero, but it works and obviously correct results can be deduced from it.

  George Berkeley (Anglican Bp. of Dublin), 1734:

  "What are these fluxions [derivatives]? ... They are neither finite quantities, nor quantities infinitely small, nor yet nothing. May we not call them the ghosts of departed quantities?"

  "He who can digest a second or third fluxion need not, methinks, be squeamish about any point in divinity."

  Cauchy (early 1800s) solved the logical problem by introducing theory of limits. $dy/dx = \lim_{\Delta x \to 0} \Delta y/\Delta x$

  Robinson (20th cent.) solved it a different way, with *nonstandard arithmetic* (moving the theory of limits into the number system).

  Main point: Mathematicians worked for 200 years by taking it on faith that this logical problem would one day be solved. There are similar points of faith today in set theory. Mathematics is not a field of exact proven knowledge.

- **Christianity is not irrational.**

  Arguments against God:

  (a) Rationalist: "I won't take anything on faith. I want proof of everything or I won't believe it."

  (b) Irrationalist (postmodernist): "We're never really going to know anyhow, so believe whatever you feel like believing."

  Christian responses:

  (b) Irrationalism is self-refuting, and no one follows it consistently.

  (a) You believe a lot of other things without *complete* proof, on the weight of evidence. Why not this? What kind of evidence would be adequate?

- **Bibliography**

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