http://www.math.huberlin.de/~ilehmann/Errata_Pi_Buch/Errata_Homepage_Pi_Buch_Oct_2006.pdf



A Biography of the World's Most Mysterious Number Alfred S. Posamentier & Ingmar Lehmann Afterword by Dr. Herbert A. Hauptman, Nobel Laureate



 π : A Biography of the World's Most Mysterious Number

Alfred S. Posamentier & Ingmar Lehmann

Afterword by Dr. Herbert Hauptman, Nobel Laureate -Prometheus Books Publishers, Amherst, New York, 2004. 324 S. ISBN 1-59102-200-2

Pi'nin Biyografisi. Türkçesi: Handan Eğlence. Cağaloğlu-Istanbul, Güncel Yayıncılık; Ocak 2005, 1. Baskı, 13.5×21, 304 sayfa, Türkçe, K. Kapak.

ISBN 975-8621-95-5





Translation by Nikkei Business Publications, Inc.

arranged through Tuttle-Mori Agency, Inc., Tokyo, 2005

ISBN 4-8222-8245-7

La proporcion trascendental la historia de pi, el numero mas misterioso del mundo

Barcelona, Editorial Ariel, S.A., 2006, 360 páginas

ISBN: 84-344-5300-2

 π : A Biography of the World's Most Mysterious Number.

Afterword by Dr. Herbert Hauptman, Nobel Laureate.

Hyderabad, Universities Press (India) Pvt. Ltd., 2006, 324 S.

ISBN 81-7371-561-0



Biography of the World's Most ysterious Aumber

> Alfred S Posamentier Ingmar Lehmann

Publisher's notes (On Book Jacket)

 π – this seemingly mundane number – holds a world of mystery, which has fascinated mathematicians from ancient times to the present. What is π ? What is the real value of π ? How do mathematicians determine the value of π ? In what ways is π used? How was it calculated in ancient times? Its elusive nature has led investigators over the years to ever-closer approximations.

In this delightful introduction to one of math's most interesting phenomena, Drs. Posamentier and Lehmann review π 's history from prebiblical times to the twenty-first century and the many amusing and often mind-boggling attempts to estimate its precise value. They show how this ubiquitous number comes up when you least expect it, such as in the calculation of probabilities and in biblical scholarship. In addition, they present some quirky examples of obsessing about π over the centuries – including an attempt to legislate its exact value, and even a π song – as well as useful applications of π in everyday life.

Among its many attributes, mathematicians call π a "transcendental number" because its curious value cannot be calculated by any combination of addition, subtraction, multiplication, division, or square root extraction. More curious still, regardless of the number of decimal places to which you extend the value of π , the decimal never repeats itself. In 2002 a Japanese professor using a supercomputer calculated the value to 1.24 trillion decimal places! Nonetheless, in this huge string of decimals there is no periodic repetition.

This enlightening, intriguing, and stimulating approach to mathematics will entertain and fascinate readers while honing their mathematical literacy.

Contents

Acknowledgments

Preface

Chapter 1: What is π ?

Chapter 2: The History of π

Chapter 3: Calculating the Value of π

Chapter 4: π Enthusiasts

Chapter 5: π Curiosities

Chapter 6: Applications of π

Chapter 7: Paradox in π

Epilogue

Afterword by Dr. Herbert Hauptman (Nobel Laureate 1985)

Appendix A A Three-Dimensional Example of a Rectilinear Equivalent to a Circular Measurement

Appendix B Ramanujan's Work

Appendix C Proof That $e\pi > \pi e$

Appendix D A Rope around the Regular Polygons

References

Index

Errata

 π : A Biography of the World's Most Mysterious Number

By A. S. Posamentier and I. Lehmann (1st Printing)

Back book jacket flap: Author's name is misspelled: "Ingmar"

Page 7: Line 2 from bottom: Change Kristan to Tristan.

Page 24: Line 3 from bottom: Insert "finite" to read: "... be calculated by a <u>finite</u> combination of the ..."

Page 68: Footnote 33 line 2 should read: "… logarithm of 16 is (approximately) 1.2041 because $10^{1.2041}$ equals (approximately)…"

Page 82: Line 5: insert "sin" at the beginning of the line to read: " $\sin \angle AOK = \sin 30^\circ = ...$ "

Line 6: sin 30° instead of sin 30°

Page 85: Fourth line from bottom: change "inscribed circle" to "inscribed polygon"

Page 86: All figures on this page should have the inscribed circle the same size. This means adjusting the sizes of some of the figures; also on pages 80-81

Page 95: Line 1: $<AMB = 45^{\circ}$ instead of $m < AMB = 45^{\circ}$; $<AMC = 22,5^{\circ}$ instead of $m < AMC = 22,5^{\circ}$

Page 97: fig. 3-11: the point on the extreme right of the circle should be labeled "P" and not "F"

Page 99: Delete the first line and part of the second line up to the comma. So the page will begin with "The method of Cusanus depends only..."

Page 104: seventh line from bottom: $\frac{m_{\text{square}}}{m_{\text{circle}}}$ instead of $\frac{m_{\text{circle}}}{m_{\text{square}}}$

sixth line from bottom: Delete last word "Franzose"

Page 105: Line 1: < DAM instead of m< DAM, Line 3: $\frac{a}{2} = \frac{\sqrt{3}}{2} \cdot r$

 $\left(1 - \frac{113 \cdot \pi}{355}\right)^{-1}$

Page 104: ninth line from bottom:

Page 115: Line 7: insert the underlined words so it reads: "... was originally discovered in the western world by Adriaen ..."

Page 128: Akira Haraguchi (Japan, 59 years) took over 13 hours to recite 83 431 digits of π (July 2nd, 2005). [http://www.nachrichten.ch/detail/215721.htm]

Page 149: Figure at top of page: delete the fourth line (beginning with 1+), then tighten up the fraction.

Page 167: Line 5 and 6: the equation should read: " $\pi(s+a) + \pi a = \pi(s+2a)$ "

Page 176: Last line equation should read: "... $\pi r^2 + 3r^2(2\sqrt{3} - \pi) = 2r^2(3\sqrt{3} - \pi)$ "

Page 192: Fig. 6-32: The Sun should be on the line representing the Ecliptic (i.e. rotated 90 degrees relative to where it is in the figure).

Page 205: Fig. 6-45b should be redrawn to make AB the same length as in Fig. 6-45a. that will mean enlarging the figure considerably.[Or reduce the bigger ones!]

Page 213 and 214: Fig. 6-45a, Fig. 6-45b, and Fig. 6-45c should be replaced by the following:



Fig. 6-52a

Fig. 6-52b



instead of Fig. 6-45a, Fig. 6-45b, and Fig. 6-45c

read:

Fig. 6-52a, Fig. 6-52b, Fig. 6-52c

Fig. 6-52c

Page 240: Third line from bottom: insert "half" to read: "...meter longer than <u>half the</u> circumference ..."

Page 242: Last line change next to last word: "form" should read "from"

Page 301: sixth line: change "monotonously" to "monotonically"

Next to last line should be replaced with: $e^{\ln \pi^e} < e^{\pi}$

Page 302: fifth line should read $f''(e) = -e^{\frac{1}{e^{-3}}} \approx \dots$ (a second apostrophe was added)

Page 307: second line: replace " $\tan 60^\circ$ " with " $\tan 36^\circ$ "

We appreciate any comments about the book as well as any typographical errors that have not yet been detected so that they can be incorporated in future printings of the book.

Alfred S. Posamentier: asp2@juno.com

The City College of the City University of New York

Ingmar Lehmann: ilehmann@mathematik.hu-berlin.de

Humboldt University of Berlin