

(Read and download) Number Mosaics

## Number Mosaics

*Adi R Kanga*

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**Adi R Kanga : Number Mosaics** before purchasing it in order to gage whether or not it would be worth my time, and all praised Number Mosaics:

3 of 3 people found the following review helpful. Numbers Go On SteroidsBy A CustomerIf you're drawn to things like magic squares, Fibonacci number puzzles or fractal geometry, you'll find "Number Mosaics" by A. R. Kanga irresistible. "Number Mosaics" is recreational mathematics on steroids. The author weaves ordinary numbers into geometrical arrangements such as spirals, stars, lattices and ladders, exploring the arithmetical properties they generate, much like magic squares. He takes a neglected corner of the arithmetical universe and spins a fascinating gossamer web, articulating a novel theory of numbers. While this is not a text on traditional number theory, it's not George Gammow's "One, Two, Three... Infinity," either. This book is quite narrow in focus. It's not a popularization, since this is probably the only treatment of the subject in existence. It's as if Kanga hit on a vein of numerical ore, exhaustively mining and refining it into a unique theory of - Number Mosaics! The closest thing I have read is, "Magic Squares and Cubes," by W. S. Andrews, which is both a survey and a presentation of novel material. In contrast, most popular books on mathematics today take the reader on a wide-ranging tour of dozens of topics, but don't offer original treatments such as Number Mosaics does. A sampling of my personal favorites includes: "Fractals, Chaos, Power Laws - Minutes From An Infinite Paradise," by Manfred Schroeder (1990) - This book demands some high-school math to get the most out of but is well written and chock full; "The Story Of [the square-root of minus-one], An Imaginary Tale," by Paul J. Nahin (1998); "The Divine Proportion," by H. E. Huntley (1970); "The Mathematical

Tourist," by Ivars Peterson; and an excellent book by Devlin. And there are the classics by such writers as Martin Gardner, Hogben, Kasner, Newman, Klein and many others. If you're interested in grander vistas than that offered by "Number Mosaics," other writers have developed novel mathematical theories of much greater significance. In his monumental "Synergetics" and "Synergetics II," Buckminster Fuller develops a unique structural "Theory Of Everything" based upon, among other things, a repudiation of the Cartesian coordinate system and its 90 degree axes, which he replaces with a axis system based on 60 degrees. This has born fruit in the field of solid-state physics with the invention of "fullerines," perhaps better known as "Bucky-balls," synthetic carbon molecules with extraordinary physical properties. Benoit Mandlbrot's epochal "The Fractal Geometry Of Nature" summarizes the work of this pioneer, which has altered the course of science and engineering, from weather prediction to telecommunications to astronomy to population fluctuations. Another highly original, if far less influential thinker is Arthur Young, whose books include, "The Reflexive Universe," - also a kind of "Theory Of Everything" - and, "The Geometry Of Meaning." The latter is a brilliant synthesis of the calculus, physics, aerodynamics, astrology, Aristotelian philosophy and phenomenology. Despite this intimidating description the book is highly readable even for the mathematically uninitiated, yet presents ideas of genuine significance. I highly recommend both books. Douglas Hofstadter's classic "Godel, Escher, Bach" gives us his imaginative insights into the connections between the paradoxical logic of Godel's Uncertainty Theorem, the visual paradoxes of M. C. Escher's engravings and J. S. Bach's perpetual canons, via dialogues a la Lewis Carrol. His "Metamagical Themas" is also of interest. Straddling popularization and originality is the provocative, "Laws Of The Game, How The Principles Of Nature Govern Chance," by Manfred Eigen and Ruthild Winkler (1981). I cannot fail to mention one of the most enduring classics of "underground" mathematics, G. Spencer-Brown's "Laws Of Form." A slim volume, it is slow going, but is the kind of book that will continue to yield precious insights twenty years after the first reading. Brown claims to have simplified mathematical logic by adding to the accepted list of logical results - true, false and meaningless - the result, "imaginary". He claims to have used this imaginary logical operator to be the first to prove the famous four-color theorem, but apparently this claim has not received any attention from mathematical officialdom. While all the above-mentioned books have far greater general relevance than "Number Mosaics," the field of mathematics is full of once "useless" curiosities that eventually became the keys to powerful new technologies. Case in point: Imaginary numbers. Perhaps one day, the curious "Universals" in "Number Mosaics" will prove to have applications which we cannot even imagine today.

Number Mosaics has little in common with most other books of recreational mathematics. Though it contains much for the reader to marvel at and wonder about, it is far from being just another book of mind bending puzzles. It is more in the nature of a story of discovery and adventure in hitherto unexplored regions of the fascinating universe of numbers and patterns. As the story unfolds, the reader is drawn into it and soon becomes a member of the exploring party. The problems which feature in the book are intriguing in themselves, but the focus is not so much on obtaining the right answers as on the numerous and ingenious ways of arriving at the solutions. The approach adopted is similar to that often used in the past by old masters like Fermat, Euler and Gauss, to name a few. The critical examination of raw data initially invokes a response in the form of a conjecture which is then refined and tested in wider and wider fields. The book abounds with illustrative examples and illuminating diagrams, and throughout it the search for universals continues like a powerful undercurrent, as master keys are forged which work under all manner of changing conditions for solving a variety of problems, often without the need for calculations. This is a book which lovers of number lore will surely relish.

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