
Introduction

This is a book for the curious and the fearful, for those who would like to understand newspaper and magazine articles and “popular” books involving a modicum of mathematics. It is for anyone who remembers junior high or high school mathematics with alternating feelings of dread and boredom. Readers who had mathematics in college to fulfill a requirement, rather than a personal desire, will find the book instructive as well. Teachers and students will also find the book helpful.

The first three chapters of the book are qualitative. Chapters one and two concentrate on the failure of our educational system to create mathematically literate citizens. There is some additional commentary on problems within our society that are peripheral to mathematics education but relevant nonetheless. Chapter three, “*A Brief History of Mathematics*,” is intended to put mathematics and mathematical literacy (numeracy) within the context of human development.

Chapters four, five, and six explore real-world problems. With some modest reminders, the reader is expected to operate at a seventh-grade arithmetic level.

Chapters seven and eight require no more than basic ninth-grade algebra skills which are explained within the body of the text. Again, the writing centers around real-world problems. So much so, that even if the mathematics is not fully understood after the first reading,

the reader will still appreciate the problems being investigated.

Overall, the book will help people see how the need for mathematics evolved historically. It also clarifies many of the relevant parts of the subject that are essential in today's world. The emphasis is not on stating rules and giving trite examples (Sally has x coins in her pocket..., Mary is two years older than Bill..., etc.), which are the standard fare of school mathematics.

For the purpose of keeping the reader awake, no attempt is made to follow the traditional mathematics syllabus. Rather, the approach is to take timely topics and then ask the question, "What background is required to understand this problem?" For example, in chapter six, problems involving diet, inflation, and taxation are addressed by setting the scene with preliminary information that brings these problems into a more meaningful light. Problems are viewed as holistically as possible, allowing for the mathematics to evolve naturally.

Real problems have a way of reaching into many different fields. Ignoring this fact by concentrating solely on mathematics renders such problems sterile and lifeless. Mathematics, of course, has its own special value. But when applying mathematics to real-world problems, be it a simple percentage calculation or data analysis, its purpose is to aid intelligent decision making.

The style of this book is informal and nurturing, though there are no overtures regarding the topic of math anxiety. This is not to diminish the many interesting questions that the study of math anxiety raises, such as: Does math anxiety arise from poor education, or from subliminal signals that mathematics is a difficult subject that only the brightest and most gifted individuals can successfully master? Are females innately less capable in mathematics than males, or were they, at an early age, conditioned away from the subject?

Perhaps if mathematics is viewed no differently than any other subject, old psychological barriers can be overcome. To do so, context and critical thinking should be emphasized before more esoteric principles are tackled and endless drill problems assigned. After all, humanity did not begin the study of mathematics for its abstract

beauty or its ability to solve meaningless problems. Conversely, it grew out of our social and economic needs.

No one book can solve all the problems created by years of frustration in the classroom. May this book be one of many in the reader's arsenal against math illiteracy.