

Mea Vulgata Mathematica.

My book will have a title like *Why Math?* or *Math Without Formulas* or *Go Forth and Multiply*. It will be breezy and light, but not too smart-alecky. Above all — it will not be self-righteous or condescending. I will have to be quite frank about my own difficulties with the subject: occasional anxiety and revulsion, frequent confusion and just plain incomprehension (e.g. of colleagues at a neighbouring table). Such confessions are extremely important for establishing credibility. It is strange that they are so rare . . .

I believe that fear and loathing of math are natural and understandable. The former comes from that utter helplessness and vulnerability — up the creek without a paddle, naked in the market square, eyeless in Gaza — experienced when the mind frantically tries to grapple with the invisible, especially in the presence of others who seem to see it. The latter reflects a kind of Sisyphean weariness of the mind facing yet another battle with entropy: having once more to “refresh the screen” in painstaking detail, to give the CPU a fighting chance of finding the hidden door. All this is exacerbated by the fact that its tools are half submerged in the subconscious (where the key will be forged) and do not respond to straightforward volition.

No wonder then, that math is a favourite sport of young, cocky minds — but only those who, by some stroke of fortune, have had a first successful bout with it. The others whistle and mumble in the dark: of laws, principles, rules, and formulas — clanking anti-mathematical armour, but something to cover their nudity. This unfortunate majority knows math only by hearsay, paradoxically as both a profound mystery and the epitome of reason. To them I wish to offer my book as a bridge — but to cross it they will have to leave behind their heavy metal. In exchange I will give them a solid story line.

It will not be one of the standard yahoo plots of heroes and villains, but a narrative of numbers, shapes, and crystalline relations. As we follow it, the terrain will gradually become more familiar, the “refresh cycles” easier, and the search less scary. Don’t worry about complacency and boredom: a few steps beside the path there will be riddles and adventures galore.

Of course, there will be pictures, but we’ll try to avoid diagrammatic pedantry. Some will be in 3-D and come in two flavours: the red-green type (glasses supplied) and the “magic eye” type. The latter will also serve as an allegory for the effort required to “see” a theorem. We shall illustrate conic sections (including the famous focal spheres), phases of the moon in different seasons, Cavalieri’s sliced volumes, etc.

It will open very gently with *Addition and Subtraction Revisited*, then *Multiplication*, further *Division*, and finish its first part with something on *Squares* and on *Primes* — all this with natural numbers only. The second part will attack the thorny issue of fractional (and perhaps negative) quantities and scaling. The third and fourth parts will deal with geometry and mensuration, respectively. Real numbers will show up only at the end and *à la grèque*. The aim is to disarm and charm the reader with simplicity, transparency, and candour, while at the same time providing ample food for thought. Will I be equal to the task?