The Night I Almost Didn't Grow Up

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Synopsis

This is a short memoir about the role that math played in a certain part of my young life.

I was truly in very grave danger. I remember it photographically, the layout of the strange dorm room – less than half the size of my long room at home, the closets and chests in different places relative to my softer bed, on which I had thrown myself, increasingly crying. And the bed not next to any window.

I had gotten pretty far in growing up – all the way to filling out, with only some help from parents and particularly caring teachers, the N.Y.U. applications and scholarship forms, getting full tuition plus fees, then packing my suitcase by myself, unpacking it, walking along 8th Street to choose interesting places for lunch and dinner, locating all the rooms and buildings necessary to show up for things like orientation, getting along with my new roommate who was grown up in ways I wasn't. I'd also grown up enough to have a boyfriend, a "boy back home" to talk about with my roommate and the other girls on the floor whom I would meet later – Sarah in Room 424 next door, Barbara and Joanie in 426, and around the corner friends like Joanne, another math major, along with several nameless girls who showed up for nightly chats in Joanie's room.

But I was in grave danger of not going the rest of the way. For three nights in a row I had, when my roommate wasn't around and I was, sobbed

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[1] **Editor's note:** Marion Cohen teaches mathematics at Arcadia University, Glenside, PA, and has developed a course called *Mathematics in Literature*. Her poetry book, *Crossing the Equal Sign*, describes the experience of mathematics. See the Poetry Folder, a part of Henderson's report in this issue, for some of Marion Cohen's poetry work.

from what felt like homesickness, a homesickness I was terrified would turn out to be exacerbating and incurable. "College is gonna be just like camp," I thought miserably, "and seventh grade."

"The moment Marion walked into my room, I knew:" my seventh grade health teacher had told my parents. "She's a different kind of child." She'd meant it as a compliment but probably also a warning. Seventh grade was indeed the year I was the *most* different, less grown up. High heels. Stockings. All my Harrison School friends had, over the summer, started wearing them. Even Frances, my best friend who lived eight doors from me and with whom I had played all summer, had suddenly, on the first day of seventh grade at Abraham Clark, somehow sprouted lipstick and eye makeup. In gym class every Tuesday and Thursday, I had broken down and cried. Something about changing into our gym-suits, taking care of ourselves as though this were a boarding school.

"Yes," I now thought, languishing on the dorm bed that early evening. "College is gonna be just like seventh grade. I'm not gonna make it. I'm gonna have to not grow up." I wasn't talking Never Never Land, wasn't interested in pirates or predicaments. I was talking home. "I'm gonna have to go home and stay there forever," I thought. "My parents will get tired of me but I won't be able to leave."

Eventually, towards the middle of seventh grade, there had come a day when I didn't cry in gym class, when I had accepted, then rejected, lipstick, high heels, and stockings. Eventually the edge had gone out of seventh grade. Eighth grade had been even more doable. And in ninth-grade algebra class at a new music and art school that my parents had wisely found for me, I had come across my life's work, my passion – my math.

Before ninth-grade algebra I had harbored a kind of on-the-back-burner mini-passion for math. I'd been fascinated by the "number tricks" that the kids passed around – "think of a number between 1 and a hundred, multiply it by 2, add 3, divide by 2 . . ." ending dramatically with "Is such and such your number?" It had not occurred to me that there could be a logical explanation for why such "number tricks" worked. Now algebra provided it. Algebra also provided a logical explanation for why "Mr. Magic 9" worked – why any integer is divisible by 9 if and only if the sum of its digits is – and for why "Mr. Magic 4", with which I had experimented in fifth grade history class, did not work. And with algebra I could answer the simple but beautiful, I thought, question, "What pairs of numbers have the same

products as sums?" I loved the way plus-one got into it. And I loved finding the various pairs, loved that all of them except (2, 2) had to involve at least one fraction. Then I loved working on finding what pairs had the same quotients as differences.

At the time I believed that algebra could answer *any* question. Or at any rate, algebra put me in touch with all of math, which in turn provided the resources to *ask* certain questions. Why does time correspond to a line of infinite length that does not cross itself? If it's possible for there to be an odd perfect number, *will* there be an odd perfect number? What is this business of things existing?

Maybe math could even answer questions about my own life, the mysteries of my childhood; what was the deal with the almost suspiciously many visual memories that, as my mother once put it, "you've been carrying around" since toddler-hood? Why did the point of light in my bedroom just happen to coincide with the corner of the room? Why did the rod of light just happen to coincide with the intersection of the ceiling and the wall near my bed? What was the secret behind bricks, Venetian blinds, and the pleats I sewed into my dolls' skirts? I believed that the secret involved math in some way. For example, in order for a skirt to have what I called "perfect pleats", the width of the material had to be three times the waist measurement. That shed enough light, for me, on the pleats question, at least at the time.

Math could also express my current adolescent angst, in a way that somehow nothing else could. Age 14, I'd imagine a tiny arrow going around in a circle in my stomach. It went faster and faster. I couldn't make it stop. I could forget about it but not actually stop it. I'd try to make it suddenly reverse direction but it wouldn't. I could make it cross the circle and then go in the opposite direction. But that wasn't what I wanted. Age 15, polynomials, with their finite number of roots – and the beginnings of my stirrings, my longings. "Falling in love is something like solving a polynomial equation," I wrote in my diary. "Everybody has his or her own polynomial, and the roots of that polynomial correspond to the loves that person has. Everyone has only a finite number of loves. Some people have polynomials with negative roots; that's when the loves live in different countries or died in childhood or something like that. Some people have polynomials with imaginary roots; that's when the loves are born on other planets or existed billions of years ago . . . And there are some people, like me, who have just-plain linear polynomials. These people have just one love."

All these math feelings were more intense than feelings I'd had before. I wanted to write poems about them. I hadn't yet written poetry, nor even read much poetry, but I felt a certain kind of poetic towards math. There were two math poems I had in mind, or at least their beginnings. But they meant so much to me that I couldn't bear to write them down. The words appearing on pages seemed an invasion of the privacy I so needed at the time. I had to get up specially in the middle of the night. Under cover of darkness, I figured, the words wouldn't be so apparent. In large letters I formed them, knowing they were probably clashing with the blue lines already on the page. When the darkness began to fade I quickly put the notebook away.

Maybe math could express everything I wanted to express. And prove everything I wanted to prove. I could *prove* that war, bigotry, and capital punishment were wrong. I could *prove* that my parents were wrong (for at times they were). I could *prove* that I wasn't wrong, wasn't a horribly unforgivably bad girl. Math could run as deep as I needed it to.

Of course I got A's in algebra, geometry, and trig, impressed my teachers, received whatever math prizes were offered, became known among my peers as "Math Brain". But I had grown up enough to know that it wasn't only a matter of being "good in math". Math to me was poignant; I had emotions about it.

I had also grown up enough to feel hurt by but nonetheless resist the subtle attitudes about "girls in math". In fact, this math-thing had helped me get the boyfriend; that's what had started us talking on the 49 bus; our first conversation was about *Flatland*. Yes indeed, I had grown up a lot. So why now, for the third night in a row, in a dorm which should be feeling less strange, was the dark so filled with invisible scurrying molecules? Why was I crying myself, not so much to sleep, as to sinking deeper into the bed? Why was I running out of crying before running out of waking?

And what, for Chrissake, was the answer to that math problem I'd been working on? I don't remember what that problem was. But there were two ideas I'd been investigating over the last couple of years. First, I'd been fascinated by the fact that multiplication is repeated addition, and exponentiation repeated multiplication. I had wondered about repeated exponentiation, and then repetition of that "fourth process?" I had also wondered what if we started with something other than addition? Would it be possible to have an infinite hierarchy of processes all both commutative and associative? That problem was too difficult, but not the individual problems of starting

with various "additions" and figuring out what "multiplications" they led to. Second, I'd been thinking about, and drawing, what I called "crossing polygons". If the sides of a polygon could cross, the formula for the sum of its angles could be different from n minus 2 times 180. I loved that a four-sided polygon could have 720 as its angle sum. I loved even more that a five-sided polygon could have angle sum a tiny 180. But I sensed a theorem about "inside" and "outside" crossings, how that would affect the angle sum? I sensed but couldn't yet possess such a theorem.

It was probably conjectures about one of those two ideas that now lay abandoned on the desk above. A desk new and strange, lighter brown and not home, but still containing my diary and my math notebook. Still, beckoning above, were points and lines and little wiry symbols that needed to be pushed about on the paper by me.

They got me out of bed. They got me sitting for hours. They got me lost, they got me chasing, they got me doing what I had done at home. And they got me realizing that, back in camp – seventh grade, too – what I had been homesick for was not my parents or my house but my life and work and self.

I was not so much away *from* home as *to* my life. Yes, growing up is a *to* thing, not a *from* thing. I remembered why I was here, in this new dorm and new city. It was because both I and the mathematicians here believed I should be here. Those points and lines needed me here. They outlasted both crying and waking. They got me grown up the rest of the way.