



Podcast: Inmate Haven: What Pi Means to Me

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Ladies and gentlemen. For those who don't know me, my name is Christopher. And welcome to another session of the Prison Mathematics Project.

What is pi day and why are we celebrating it? For many, it's to pay homage to a number. To others, pi day is a symbol for something they hold dear. It's going to be different for different people, but for me it represents personal growth and accomplishment. So to explain this, I'm going to touch a little on my personal story.

We've all been asked the question, "What are some of the first things you want to do when you get out of prison?"

I feel like I've heard almost every permutation or replies. Eat a cheeseburger. Steak. Mine would be to finally join the math community to sit in on a lecture. That is what I want to do.

But this wasn't always my mindset. Prior to 2010, I was an addict with no ambition. No goals. No future. About the only thing I managed to do was stay out of any major trouble. An educated guess is probably going to lead you to determine that at some point, I had changed. Indeed, in 2010, I caught a 25-year sentence for murder. I was 30 at the time and with no prior convictions, I was scared. The only thing about prison I knew was what I'd seen in the movies or on television. And of course there's that line: The first thing you ever do if you ever go to prison is you find the biggest guy in the yard, and you punch him in the face. Because in theory, everyone's supposed to think twice about messing with

you, right? So that was my mentality when I arrived at Walla Walla maximum security.

As soon as I arrived, I was scouted by multiple prison gangs and after a few months of playing prison politics, I probated for one of those gangs. This led me to be involved with a hit, which in turn, landed me in solitary confinement for a year.

How many of you guys have been to the hole? It's always too many. It's 24 hours a day of guys banging on walls and yelling at the cell doors. The bed's a cold, concrete slab and the large, fluorescent light directly above your head? It doesn't shut off. Most people don't handle it too well. Some people snap. Myself? I played Sudoku.

Now, after a short time in, I noticed a gentlemen passing around manila envelopes to some of the other inmates. Whatever was inside, I knew it was interesting because that man had a following. By this time I was incredibly tired of Sudoku and I was so curious that I asked the gentlemen on one of his rounds, "Can I have one of those envelopes?"

Shortly after, I ended up receiving a kite from the gentlemen. I studied so much math, during the time that I was in, the contents of an envelope was math homework. So I studied so much that I ended up getting a kite from Mr. G that said "Mr. Havens. At this time you have passed my mathematical abilities and I wish you luck on your journey."

That right there was the start. And so for the first time I had experienced drive. Now that those envelopes were no longer there to keep me busy, I studied any math I could. I kept this up for the better part of my time until I was shipped off to Clallam Bay (Corrections Center) on a special chain to finish up the remainder of my time in segregation. When I finished, I was released back into the general population but it wasn't the same as before. My mind had begun a transformation without me even realizing it and I found myself having less and less in common with members of the old gag. Our interests, they were no longer aligned. They diverged.

Here's a fact: It's not possible to talk math with the guys 'playing gangster' on the big yard. It doesn't work. I tried. So I kept to myself. I studied math. History of math. Philosophy of math. You name it. I was in the process of a full-blown

metamorphosis into a different person. And I wasn't even sure who I was anymore.

So I decided to enter into the Intensive Transition Program, ITP. This is a one-year program which helps people get their minds right. If you're on a path to better yourself, it helps you make that path.

Another thing about the ITP, is it's intense. It's exactly as its name implies. It's designed to effectively aid you into "taking your head from your backside."

And it was tough. This was my schedule. Eat, math, remove my head from my backside, brush, rinse, repeat. It was an important time in my life. Because besides from my programming my studies got more deep and meaningful.

Shortly before graduating ITP, I ended up inquiring about a math journal called "The Analysis of Mathematics." I wrote to U. C. Berkeley to find out more about it, but I was told by the editor, that it was so technical that it was probably a little out of my league. Which, at the time, it was a lot out of my league.

But he also said he'd pass my info on to a colleague. A couple months later in 2013, I received a letter from Italy by Professor Luisella Caire.

This was huge for me, as it still is. Because, there was no one I could talk math to. If I got stuck on a problem, there was no one I could turn to for help.

In our letters, we would discuss the recent math non-fictions we'd read. We'd talk a little calculous. And one of the things I found most valuable was whenever I had a problem, she never simply told me the answer. Instead, she'd send me some information on the subject so I could do some research and find the answer out on my own.

At the time, I'd been studying different types of cryptosystems. I studied modular arithmetic. I could read and write bar codes, I could even make my own RSA scheme. I thought that this made me some kind of number theorist. But in reality, back on earth, in the swamps of prison, I'd never even gotten my feet wet.

Truth be told. Luisella introduced me to number theory. She introduced me to a different number of theoretic topics. Like the Collatz conjecture, continued fractions and a ton of other stuff. When she introduced me to continued

fractions, I was hooked. I remember getting stuck on a problem.--Tell me if this has ever happened to any of you---for over a year—only to find out the solution didn't exist, and the terms that I was looking for.

But it's problems like this that teach us the most valuable lesson. Among other things, I walked away with a deeper understanding of convergence. I learned about Bessel functions and the gamma function. But more importantly, to continue my studies of continued fractions, I met Umberto Cerruti, Luisella's husband.

Now obviously, he had to know something about me through my letters to Luisella, because one of the times, when I sent my work to get feedback, when the response came, this time it was from Umberto. And the work I sent, I believe I was showing off a formula I made. It was a closed-form solution set I made to an Orowitz continued fraction. And it was beautiful.

In his response, he described a certain transformation and described some interesting research relating the transformation and the continued fraction. Of course I dove right in and I feel like I might have misunderstood his idea because I think that my results were a little bit different than what he had suggested. And I think that's actually how it's supposed to go anyway.

Nevertheless, the research I did gave several original formulas to different closed-form set of leaping convergence to Orowitz continued fractions. So for the past year or two, he's been working with me so I can formally prove the work where I hope to see it someday published in one of the math journals.

This being one of the only truly productive goals I ever applied myself to. But aside from being a catalyst for so much of my personal growth, aside from being like mentors to me, Luisella and Umberto played a significant part in the role of conceiving the Prison Math Project partnership.

Contrary to popular belief the math program isn't just some meeting held in the education building of the TRU on Mondays and Fridays. The Prison Mathematics Project is us, wherever we are. It's an extension of the mathematics community behind the walls of TRU. So let us wander back to the part of the story when the Prison Mathematics program was just beginning to take shape.

One of the challenges had been to find topics that could be explained in such a way that would appeal to people with a lot of mathematical maturity with people with none. My solution to this resulted in me becoming part of the Mathematical Association of America so I could expand my resources through their publications and sigma clubs and at the same time having access to all sorts of different math journals. Little did I know one of their publications would have such an impact on myself and other members of the math program.

There's a publication called "Math Horizons" magazine. And aside from having excellent articles, it has an awesome 'Problems' column. Upon solving one of these problems, on time and with a written proof, the solver will have one of their solutions published in one of their later issues. It wasn't until one of my first couple submissions I received a letter from the editor, Gary Gordon, stating that my submissions were a source of inspiration to him and the other MAA editors.

I'm thinking in my head, "Hold up. Back up one step. Inspiration to them? Man, that inspired me!"

The effect was like throwing gas on a fire. Or a sofa on the bon fire. I felt pride of accomplishment. And I wanted other people to experience this. And from that point on, it became part of the Prison Mathematics Project's Twin Rivers Unit Problem-Solving Team.

There is one person for whom I have not yet mentioned who is also a major inspiration: Daniel McNally of the University of Washington. My reason for omission of him is for no other reason for my lack of experience with him in respect to my story. But I assure you that our guest list would not be complete without this man here. Why? Because he's walked in our shoes. He's been behind these very walls and he's proof that you should never set aside your goals and dreams and dismiss them as impossible simply because we're institutionally challenged. In fact, today is the day is the day we start moving toward those goals. Today is our chance to tell people like Luisella, Umberto, Gary and Daniel that they inspire us to be more today than what we were when we fell and to be more tomorrow than what we are today. And so we come full circle, back to the question: What are some of the first things you want to do when you get out of prison?

I'm going to have to change my original reply because today, it happens. And I have the honor of sharing it with you. Today is part of the mathematical

community. We have the opportunity to enjoy speeches, and presentations by national and international mathematicians with impeccable skills and character. What is Pi Day? Why are we celebrating it? It's a special day. A day we are brought together not to celebrate pi specifically, but to celebrate mathematics as a whole, and to celebrate an opportunity to move our lives into a positive direction. Ladies. Gentlemen. It's Pi Day 2017.

(applause)

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