

Poetry in Conversation with Mathematics

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Abstract

Poetry enables students to connect mathematics with their emotional lives. Often when students learn mathematics, they tend to view themselves as passive recipients of the mathematical language and content. However, when students invest creative and emotional thought into mathematics it becomes their own. Sonya Kovalevsky said: "Many who have never had occasion to learn what mathematics is ... consider it a dry and arid science...however, it is the science which demands the utmost imagination... It seems to me that the poet must see what others do not see, must look deeper than others look. And the mathematician must do the same thing." In this workshop participants will read and write poems that employ mathematical language and techniques. They will experiment with mathematical writing exercises, and consider whether these exercises will increase their own, and their students' enjoyment and understanding of mathematics.

Workshop Activities. The workshop will consist of writing activities and discussion about techniques for creating future activities.

Word List Poems. The group will choose 2 or 3 mathematical topics and generate a list of 15-20 mathematical words for each topic. Then participants will choose an individual mathematical topic in order to generate a list 10 related words. The writing will begin with a quick write based on those words. Then students will trade lists and have another opportunity to write. Finally there will be an open-ended chance to write using any combination of chosen words.

Sample Poem. [Geometry](#) by [Rita Dove](#). Here is the first stanza:

"I prove a theorem and the house expands:
the windows jerk free to hover near the ceiling,
the ceiling floats away with a sigh. . . ."

Matrix Poems. This exercise is a version of some of the Oolipo poets' experiments with randomness. Each participant will create a list of 5 things that are important in their lives. They will then choose a corresponding group of mathematical words. Next they will arrange the two lists in two 3X3 matrices. Add and/or multiply the matrices. (For students unfamiliar with matrices, I'll explain how to add matrix entries.) Then write using the connections you've found from your matrices.

On Limits and Infinity. We will draw functions with asymptotes. Then we will write a poem that gets larger and larger with each line. Or perhaps writers will prefer to try the opposite: begin with a very long line and see how long it will take the poem to shrink to almost zero with each additional line.

Sample Poem: from **Infinity** by William Blake

"To see a world in a grain of sand
And a heaven in a wild flower,
Hold infinity in the palm of your hand,
And eternity in an hour."

Counting on Poem. Participants will choose something that counts for them. They will come up with numbers connected to their topic, and then write a poem where they count down from the highest number.

Sample Poem: "I Am A Number: II" by Sarah Glaz.

Sarah Glaz: **I Am A Number: II**

- | | | | |
|---|---|----|-------------------------|
| 5 | Forged in time's fire
my golden figure
rises
open
to the past
and the future
I count my digits
All Present
yet only
half way there | 8 | How did it come to that |
| 6 | I can be factored
into selves
from
former lives
each one
more potent
than
I
am
Unmultiplied
I disappear | 9 | I have no time |
| 7 | Last prime
before
the count of time
halts
and
the great mystery
begins | 10 | Decem |

Summary. Through writing a series of mathematically based poems, participants will begin to see ways to incorporate mathematical writing into their own writing practice and their classrooms.

References:

- Carol Dorf, "[Why Poets Sometimes Think In Numbers](#)," *Talking Writing*, January 2012.
- Sarah Glaz, "Mathematical Pattern Poetry," as well as other articles, and a group of poems in "Journal of Humanistic Mathematics," July 2012.
- Rita Dove, "[Geometry](#)" from *The Yellow House on the Corner*, Carnegie Mellon University Press (Pittsburgh), 1980.
- William Blake, "[Auguries of Innocence](#)," from *The Complete Poetry and Prose of William Blake*, University of California Press, 2008.