

Department of Mathematics

Fall 2017 Colloquium Series

Solving Polynomial Equations: Visualization from Linear to Cubic, from Rational to Complex Numbers

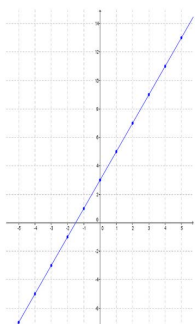
Martin Flashman,
Humboldt State University
Thursday, August 24, 2017
BSS Room 204, 4 pm

From Euclid to Descartes, solving equations and visualizing relations between numbers have been central themes in mathematics. In school mathematics these problems start formally in middle school and continue to the solution of the general quadratic equation where complex numbers are usually introduced. Cubic equations are more challenging and only special examples are treated until calculus, where applications of the intermediate value theorem are used to explain the solution of cubic equations. Rarely is any explicit formulation of the general solution of a cubic polynomial given or the nature of these solutions explored extensively.

Using some recent work with GeoGebra on mapping diagrams, an alternative to graphs, Professor Flashman will provide visualizations for both the algebra used to solve linear and quadratic equations and the relation of quadratic and cubic equations to complex number solutions.

x	$f(x) = 2x + 3$
5	13
4	11
3	9
2	7
1	5
0	3
-1	1
-2	-1
-3	-3
-4	-5
-5	-7

Table TMD1



Graph TMD1

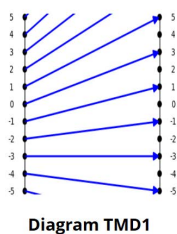
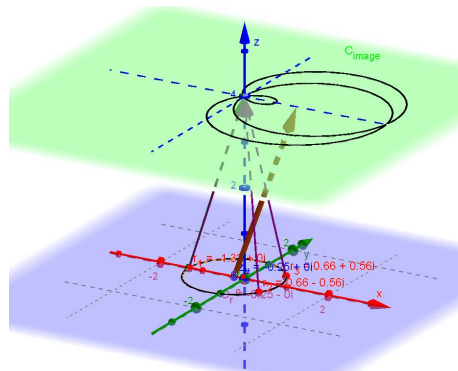


Diagram TMD1



To view this poster online, go to <http://www.humboldt.edu/math/news-and-events/math-colloquium>

We cordially invite you to the Pre-Colloquium Tea on the third floor of the BSS building at 3:30 pm on Thursday