

Department of Mathematics

Spring 2016 Colloquium Series

$$\begin{array}{l} \tan^{-1}\left(\frac{\tan x + \tan y}{2}\right) \quad \frac{1}{e}\left(\frac{y^y}{x^x}\right)^{\frac{1}{y-x}} \quad \frac{x+y}{2} \\ f\left(\frac{x+y}{2}\right) = \frac{f(x)+f(y)}{2} \quad f(x) + 2f\left(\frac{1}{x}\right) = 2x \\ (f')^{-1}\left(\frac{f(x)-f(y)}{x-y}\right) \\ f(x+y)+f(x-y)=2f(x)f(y) \quad \sqrt{xy} \end{array}$$

“Weird Means to an End: An Introduction to Functional Equations”

Dr. Walden Freedman
HSU Department of Mathematics

Thursday, February 4, 2016

Behavioral and Social Sciences Building Room 166, 4 p.m.

Loosely, a *functional equation* is an equation involving an unknown function on the real or complex numbers. The object is usually to determine all functions satisfying the equation, along with possibly some additional condition such as continuity. Certain well-known means, such as the arithmetic and geometric means, can be obtained from the Mean Value Theorem, as well as by the formation of quasi-arithmetic means. A functional equation then arises in seeking all functions that give rise to that mean, or in seeking functions that give rise to a given mean in a certain manner. In this talk, we will explore the interplay between means and functional equations. Students who have taken Calculus I should be able to follow most of the talk.

For a complete abstract, go to <http://www.humboldt.edu/math/news-and-events/math-colloquium>

***We invite you to the Pre-colloquium Tea on the third floor of the BSS
building at 3:30 on Thursday.***