

## MATH Club

### *Analytic solutions for D-optimal factorial designs under generalized linear models*

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**Abstract:** In order to find D-optimal designs in statistics, we often need to maximize a homogeneous polynomial as a function of proportions. We introduce two analytic approaches to solve D-optimal approximate designs under generalized linear models. The first approach provides analytic D-optimal allocations for generalized linear models with two factors. The second approach leads to explicit solutions for a class of generalized linear models with more than two factors. There are many other similar optimization problems of homogenous polynomials that are open and have potential applications in statistics.

Wednesday, March 7 at 5:00 PM in seo 300