

MAT 401: Undergraduate Seminar
Introduction to Enumerative Geometry
Fall 2008

Homework Assignment I

Written Assignment due on Tuesday, 9/9, at 11:20am in Physics P-117
(or by 9/9, 11am, in Math 3-111)

Chapter 1, #1,2,3,5,6

Please aim to make your solutions as concise and to the point as possible.

Discussion Problems for 9/9

What do $\mathbb{C}P^1$, $\mathbb{R}P^1$, and $\mathbb{R}P^2$ look like? (~10 mins)

Chapter 1, #8 and “duality” with the problem of determining the number of lines through 2 points in the plane. (~ 25 mins)

Fundamental Theorem of Algebra and its Consequences: Use Cauchy’s Integral Formula from complex analysis to show that every polynomial in one variable has a complex root and thus every degree d polynomial has exactly d roots counted with multiplicity. (~ 35 mins)

On Thursday, 9/4, please volunteer to discuss one of the above topics on Tuesday, 9/9.