

Math 720: Commutative Algebra and Algebraic Geometry

Homework 4

Here is a list of problems to read/compute/understand.

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| II.7 | #2-7, 11 | computation of Groebner bases;
properties of minimal Groebner bases;
the relationship between Buchberger's algorithm
and Gaussian elimination and Euclidean algorithms; |
| III.1 | # 2, 3, 5, 6, 7, 8 | understanding the elimination and extension theorems
algebraically and geometrically, over \mathbb{R} and \mathbb{C} |
| III.2 | # 3, 4, 5 | the closure theorem over \mathbb{R} and \mathbb{C} |
| III.3 | # 4-10 | the image of a parametrization for 1 and 2 dimensions, over \mathbb{R} and \mathbb{C} |

Each of you will present one problem in class. Use Sage for computations. Aim for just 5 minutes to present.

Kyle	III.1 # 2, 3	Th. 3/2
Hugo	III.1 #4	Th 3/2
Antonio	III.1 #7	Th 3/2
Sarah	III.3 #6	Tu 3/7
Nicole	III.3 #7	Tu 3/7
George	III.3 #8	Tu 3/7

Turn in these problems on **Tues 2/7**:

- III.1 #6
- III.2 #4, 5
- III.3 # 10