Slides: http://tinyurl.com/ksb32xw

How to use SMT

http://rise4fun.com/z3py/tutorial

http://stackoverflow.com/users/2327608/juan-ospina?tab=questions&sort=activity

Pencil and paper

1) Find the conditions on a, b s.t. $a\,x^4 + a\,x^3 + b\,x^2 + (a+b) < 0$
2) Prove Sturm's Theorem. Hint: break interval (a, b) into *fundamental intervals*:

   $$(a = a_0, a_1), (a_1, a_2), \dots, (a_{m-1}, a_m = b)$$

   Each interval contains at most one root of $h_0, h_1, \dots, h_n$

   If h_n is not a constant polynomial, consider the sequence $\widehat{h_i} = \frac{h_i}{h_n}$

Programming

1) Implement the basic operations $(+, \times, \dots)$ for univariate polynomials.
   Suggestion: represent polynomials using list (or vector) of coefficients.
2) Implement the Polynomial division algorithm for univariate polynomials.
3) Use to implement Sturm's sequences, and find the number of roots.