# MATH 5399-001 HOMEWORK DUE 4 APRIL

Before 5 pm on 4 April turn in your handwritten or (much preferred) before Midnight on 4 April send me your TEX'ed solutions to the following problems.

(1) Exercise 5.2.2
(2) Exercise 5.1.7
(3) Find the Zariski closure of the following sets:
    (a) The projection of the hyperbola $V(\langle xy - 1 \rangle)$ in $\mathbb{R}^2$ onto the $x$-axis.
    (b) The boundary of the first quadrant in $\mathbb{R}^2$.
    (c) The set $\{(x, y) \in \mathbb{R}^2 \mid x^2 + y^2 \leq 4\}$.

You may use Macaulay 2 to solve problems (2)–(3); if you do, the relevant code is due by Midnight on 4 April.