UH - Math 6303 - Dr. Heier - Spring 2019
HW 1
Due 02/20, at the beginning of class.

Use regular sheets of paper, stapled together.
Don't forget to write your name on page 1.

1. (2 points) Section 9.1, Problem 13

2. (2 points) Section 9.4, Problem 3

3. (2 points) Section 9.6, Problem 1

4. (2 points) Prove carefully that the coordinate axes form an algebraic set in $\mathbb{R}^3$.

5. (2 points) Let F be a field. Let $J \subset I$ be two ideals in the polynomial ring $F[x_1, \ldots, x_n]$. Prove that $LT(I) = LT(J)$ if and only if $I = J$.