## FEEDBACK: ASSESSED HW1

Overall, people did quite well on this homework. There were sometimes some gaps in the solutions to #1 and #6, and some confusion about what it means to be in $K(A)$ where $K$ is a field contained in a field $L$ and $A \subseteq L$.

1. Supposing that $f_1, \ldots, f_n$ are the only irreducible elements of $K[t]$, and setting $g = f_1 \cdots f_n + 1$, sometimes people did not clearly explain why $f_i \nmid g$ for $1 \leq i \leq n$.
4. With $K, L$ fields and $A, K \subseteq L$, the elements of $K(A)$ are **algebraic** combinations of finitely many elements of $K$ and $A$. For instance, with $K = \mathbb{Q}$, $L = \mathbb{C}$, $\alpha = \sqrt[3]{2}$, $\beta = \sqrt[3]{5}$, in $\mathbb{Q}(\alpha, \beta)$ we have elements of the form $7\alpha^2 + 6\beta$, $9\alpha\beta$, $\frac{1}{\alpha+3\beta^2}$, and so on.
6. Occassionally people did not state why $(t^3-7)^5 - 21$ is irreducible over $\mathbb{Z}$, and why this means $(t^3-7)^5 - 21$ is irreducible over $\mathbb{Q}$. (Also note: rather than expanding $(-7)^5 - 21$, one can note that $7 | (-7)^5 - 21$, $7^2 | 7^5$, $7^2 \nmid 21$ and so $7^2 \nmid (-7)^5 - 21$.)