Please read the exam instructions.

You may earn extra credit by submitting revised answers to both of the following problems, by the next class day (2/5/13). Please see the syllabus for more details.

1. Consider the ring $\mathbb{R}[x]$, polynomials with real coefficients. Two elements from this ring are $f(x) = x^4 - 2x^2 - 8, g(x) = x^3 + x^2 + 2x + 2$. Use the Euclidean algorithm to find $\gcd(f(x), g(x))$.

2. Prove that for all $a, b, c \in \mathbb{N}$, $\text{lcm}(ab, ac) = a \text{lcm}(b, c)$.