MATH 3360 HOMEWORK ASSIGNMENT 18

DUE ON TUESDAY 5 MAY 2020

(1) Let $f(x) = x^4 + 5x^2 + 3$.
   (a) Determine a prime p such that $f(2) = 0$ over the field $\mathbb{Z}_p$.
   (b) Factor $f(x)$ as $(x-2)q(x)$ in $\mathbb{Z}_p[x]$.

(2) Use the Euclidian algorithm to find the greatest common divisor in $\mathbb{Z}_5[x]$ of $f(x) = x^3 - 2x + 1$ and $g(x) = x^2 - x - 2$.