MATH 5399-001 HOMEWORK DUE 21 FEB

Before Midnight on 21 February send me a Macaulay 2 file (extension m2) with the commands to solve the following problems. Please make `restart` the first command in your file.

(1) Exercise 2.3.8 from the textbook.

(2) Let $f = (x+y)^2(x-y)(x+z^2)$ and $g = (x+z^2)^3(x-y)(z+y)$. Find generators for the ideal $\langle f \rangle : \langle g \rangle$.

(3) In the ring $R = \mathbb{Q}[x,y,z]$ consider the ideal $I = \langle x^2, y^3, z^4 \rangle$. Compute the free resolution of R/I and print the maps in the resolution to a file.