Spring 2020, Math 621: Preliminary Problem Set 4
Due: Thursday, February 20th, 2020
Hilbert Series and Hilbert's Theorem

Preliminary problems. These problems should be completed before discussion on Thursday.

(P1) Find a rational expression for the Hilbert series $\mathrm{Hilb}(R; z)$ of each of the following rings R.

    (a) $R = \Bbbk[x, y]$ with $\deg(x) = \deg(y) = 2$.

    (b) $R = \Bbbk[x, y]/\langle xy \rangle$ with $\deg(x) = \deg(y) = 2$.