## Algebraic Methods in Kinematics

## Homework 4

Let $a_{1}, a_{2}, a_{3}, b_{1}, b_{2}, b_{3} \in \mathbb{Z}$. Compute the mapping degree ( $=$ cardinality of the preimage of a generic point) of the map

$$
\left(\mathbb{C}^{*}\right)^{2} \rightarrow \mathbb{P}^{2},(x, y) \mapsto\left(x^{a_{1}} y^{b_{1}}: x^{a_{2}} y^{b_{2}}: x^{a_{3}} y^{b_{3}}\right)
$$

Remark: Using the BKK formula is maybe the fastest approach. However, the map is simple enough so that the preimages can be explicitly computed and then counted.

