

**Fall 2021, Math 596: Week 5 Preliminary Problems**  
**Due: Thursday, September 23rd, 2021**  
**The Bridge from Power Series to Geometry**

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

(P1) Find all 5 ways of writing  $(6, 6)$  as a sum of the vectors  $(3, 0)$ ,  $(2, 1)$ ,  $(1, 2)$ , and  $(0, 3)$ .

(P2) Find the coefficient of  $z_1^6 z_2^6$  in the expansion of

$$\frac{1}{(1 - z_1^3)(1 - z_1^2 z_2)(1 - z_1 z_2^2)(1 - z_2^3)}$$