Spring 2026, Math 590: Week 8 Preliminary Problems
Due: Wednesday, March 25th, 2026
Ehrhart Functions and Ehrhart Series

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

(P1) Draw the cone

$$C = \text{span}_{\geq 0}\{(1,1),(3,1)\} \subset \mathbb{R}^2.$$

(P2) Using your picture, fill in the blanks in the rational expression for

$$\sigma_C(z_1, z_2) = \sum_{(p_1,p_2)\in C} z_1^{p_1} z_2^{p_2} = \frac{}{(1- \quad)(1- \quad)}.$$

(P3) Find a formula for $f(n)$ in the series

$$\sigma_C(1, z) = \sum_{n\geq 0} f(n) z^n,$$

and explain its meaning in terms of your picture in Problem (P1).