

# Ehrhart polynomials of integral simplices with prime volumes

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For an integral convex polytope  $P \subset \mathbb{R}^d$  of dimension  $d$ , we call  $(\delta_0, \delta_1, \dots, \delta_d)$  the  $\delta$ -vector of  $P$  and  $\text{vol}(P) = \sum_{i=0}^d \delta_i$  its normalized volume. In this paper, we will establish the new equalities and inequalities on  $\delta$ -vectors for integral simplices whose normalized volumes are prime. Moreover, by using those, we will classify all the possible  $\delta$ -vectors of integral simplices with normalized volume 5 and 7.

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