MATH 4550: Applicable Geometry

Problem Set 9

Due at 2:54pm before class starts on April 18, 2013

You are allowed to work in groups, but the solutions you hand in should be written by you only. If you work in a group, you must write the names of your collaborators at the top of your assignment. Explain your reasoning to receive full credit. All problems are worth 10 points. You are strongly encouraged to type your solutions in LaTeX. In any case, please staple your psets!

P1 Consider the segments between (0, 0) and (1, 0), (0, 1) and (1, 1), and (2, 3) and (1, 4) in $\mathbb{R}^2$. What is their Minkowski sum $Z$? Which parallelepipeds can you tile $Z$ with? What is the corresponding hyperplane arrangement? What is the fan of $Z$ and how about the hyperplane arrangement?

P2 Is a $d$-simplex a zonotope? Justify.