Exercises for "Helly graphs and groups"

Masterclass "Topics in Geometric Group Theory"
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List 3

(1) Show that Gromov hyperbolic graphs have β-stable intervals.
(2) Show that Gromov hyperbolic graphs are coarsely Helly.
(3) Find the Hellyfication of the 1-skeleton of the regular triangulation of the Euclidean plane.
(4) Let T be the triangulation of a plane such that every vertex is contained in exactly 7 triangles. Let N be the nerve of the covering of the plane by the (closed) triangles of T. Show that (the 1-skeleton of) N is Helly.
(5) Show that a geodesic metric space (X, d) has the coarse Helly property if $d_H(e(X), E(X)) < \infty$.
(6) Show that Helly groups have finitely many conjugacy classes of finite subgroups. (Use the fixed point property for finite groups acting on Helly graphs.)