

General Mathematics and CPS II

Exercise 6

February 22, 2012

1. (Ivanov, p. 34, Problem 9.) Consider two squares situated in the same plane. Join any corner of one square to any corner of the other by means of a line segment, and then, proceeding in the same direction around both squares, the next corner to the next, and so on.

Prove that the midpoints of the four line segments so constructed are also the vertices of a square.

2. (Ivanov, p. 36, Problem 14.) Show that
 - (a) $R_{\ell_1} R_{\ell_2} = R_{\ell_2} R_{\ell_1}$ if and only if ℓ_1 and ℓ_2 are perpendicular;
 - (b) $R_{\ell} H_A = H_A R_{\ell}$ if and only if $A \in \ell$.