Group theory – Hand in sheet 4

deadline: 19/Oct/10

Recall that given a group G, G acts on itself by conjugation:

$$Ad : G \longrightarrow S_G; \qquad Ad_x : G \longrightarrow G; \qquad Ad_x(g) = xgx^{-1}.$$

1) Let S_5 act on itself by conjugation. What are the orbit and the stabilizer of the cycle (1 2 3 4 5)? Conclude that the orbit of an element by an action of S_5 can have more than 5 elements.