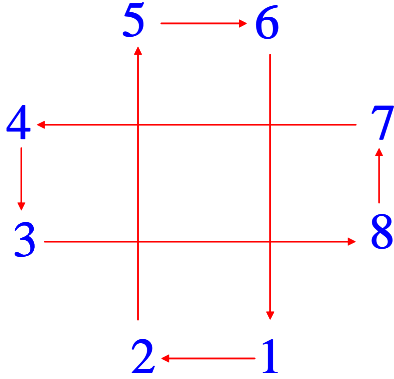Lesson 12
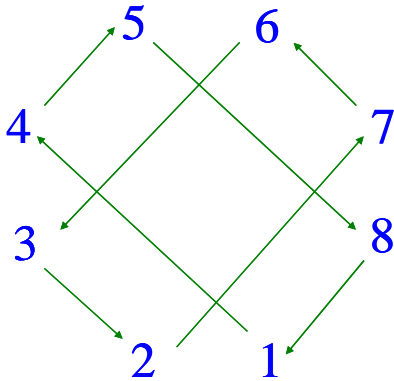
INTRODUCTION TO ORBITS – PRACTICE

Let $X = \{1,2,3,4,5,6,7,8\}$, and for each diagram below let *G* be the group created by the indicated generators. Find all the orbits of *G* on *X*.

1. G = { (), (1,2,5,6)(3,8,7,4), (1,5)(2,6)(3,7)(4,8), (1,6,5,2)(3,4,7,8) }

2. $G = \{$ (), (1,4,5,8)(2,7,6,3), (1,5)(2,6)(3,7)(4,8), (1,8,5,4)(2,3,6,7) $\}$

3. G = { (), (1,2,5,6)(3,8,7,4), (1,3,5,7)(2,4,6,8), (1,4,5,8)(2,7,6,3), (1,5)(2,6)(3,7)(4,8),
    (1,6,5,2)(3,4,7,8), (1,7,5,3)(2,8,6,4), (1,8,5,4)(2,3,6,7) }