Abstract Algebra 1
Quiz 3

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

Let $\alpha, \beta \in S_8$ be the permutations
$$\alpha = (1\ 2)(3\ 4)(5\ 6\ 7\ 8) \quad \text{and} \quad \beta = (1\ 5\ 3)(4\ 7).$$

1. Express $\alpha\beta$ in cycle notation.

$$\alpha\beta = (1\ 6\ 7\ 3\ 2)(4\ 8\ 5)$$

2. Express α^{-1} in cycle notation. (It might help if you draw a directed graph representation of α.)

$$\alpha^{-1} = (1\ 2)(3\ 4)(8\ 7\ 6\ 5)$$