Abstract Algebra 1
Quiz 7

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.

1. Compute the Cauchy number of $\alpha = (1\ 2)(3\ 4\ 5)(6\ 7\ 8\ 9)(10\ 11\ 12\ 13\ 14)$ and state whether α is an even or an odd permutation.

$$\sum_{\text{cycles}} (\text{cycle length} - 1) = (2-1) + (3-1) + (4-1) + (5-1) = 1 + 2 + 3 + 4 = 10,$$

which is even. Thus, α is an even permutation.

2. Give one representative of each conjugacy class of S_4.

Conjugacy classes are determined by cycle type, so we have to exhibit one element of each cycle type in S_4:

- 1 (or (1))
- (1 2)
- (1 2 3)
- (1 2 3 4)
- (1 2)(3 4)