Homework 11
Due: Friday, May 3

1. [J]5.2. *Here, "compute" means "write as a product of disjoint cycles".*

2. [J]5.4.

3. Suppose $\alpha = (a_1, \cdots, a_m) \in S_n$ is an m-cycle. What is the order of α? Justify your answer.

4. (a) Give an explicit example of elements α, β of some S_n such that $\text{ord}(\alpha\beta) = \text{ord}(\alpha) \cdot \text{ord}(\beta)$.
   (b) Give an explicit example of elements γ, δ of some S_n such that $\text{ord}(\gamma\delta) \neq \text{ord}(\gamma) \cdot \text{ord}(\delta)$.

5. [J]5.31. (HINT: *Don't explicitly compute with cycles; the same statement is true if S_n is replaced with any group!*)