

**In-class Practice 24: Complexity Theory**

Give an example of, or state that none exists, or state that the existence/nonexistence has not yet been determined:

1. A problem in  $\mathcal{P}$
2. A problem in  $\mathcal{NP}$  but not in  $\mathcal{P}$
3. A problem not in  $\mathcal{NP}$
4. A complexity class equal to  $\mathcal{PSPACE}$
5. A regular language not in  $\mathcal{L}$
6. A context-free language that is  $\mathcal{NP}$ -complete