This assignment is due by the start of lecture on Wednesday, November 28.

1. **(3 points)** (Sipser 8.10) [go-moku in PSPACE]
   (Think about on your own: What if we had only considered a 19 x 19 grid?)

2. **(2 points)** Languages in $L$:
   
   (a) **(1 point)** (Sipser 8.17) [nested parentheses]
   
   (b) **(1 point)** (Sipser 8.22a) [ADD in L]

3. **(3 points)** (Sipser 8.30) [$E_{DFA}$ is NL-complete]

4. **(2 points)** (Sipser 9.19) [USAT in $P^{SAT}$]

5. **(2 points)** (Sipser 9.22) [tale of two oracles]

6. **(3 points)** (Sipser 10.20) [The class ZPP]