

Open book and notes.

**Problem** Variables  $x$  and  $y$  are 4-bit long words in the following two equations. Solve for  $x$  and  $y$ . Recall that  $\bar{x}$  is the complement of  $x$ .

$$\begin{aligned}x \oplus y &= 1, \\ y &= \bar{x} \oplus \bar{y},\end{aligned}$$