

# CS121 Midterm Review

	What	How
Finite	$f: \{0,1\}^n \rightarrow \{0,1\}$	NAND-CIRC    Boolean circ
	$f: \{0,1\}^n \rightarrow \{0,1\}^m$	ADDN-CIRC    NAND-CIRC
unbounded inputs	$F: \{0,1\}^* \rightarrow \{0,1\}$	TMS    python
	$F: \{0,1\}^* \rightarrow \{0,1\}^*$	NAND-TMS
	$L \subseteq \{0,1\}^*$	NAND-RAM

Wu is computable

Wu is uncomputable

Hu computes XOR:  $\{0,1\}^* \rightarrow \{0,1\}$

Wf is in SIZE(1000000)

Hu halts on every input

Hu halts on 110110

Hf computes MAT<sub>5</sub>:  $\{0,1\}^5 \rightarrow \{0,1\}$