

Bit wise subtraction

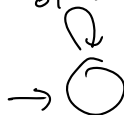
$$\begin{array}{r} \cancel{1} \cancel{0} \cancel{1} 0 \cancel{1} \\ - 00110 \\ \hline 1111 \end{array}$$

Assume inputs are stacked,

assume it's like

$$x - y \text{ where } y \leq x$$

$\begin{array}{l} 1/1, R \\ 0/0, R \\ 1/1, R \\ 0/0, R \end{array}$



B/B, L

1/0, L

0/1, L

0/0, L



nB

1/0, L

B



1/1, L

0/1, L

0/0, L

0/0, L

1/0, L

0/0 with no borrow results in: 0, nB

0/1 - - - - - 1, nB

0/0 - - - - - 1, B

1/0 with borrow: 0, nB

1/1 with borrow: 1, B

0/0 with borrow: 1, B

0/0
0/0
0/1

0, B

$$\begin{array}{r} \overset{2}{2} \overset{9}{9} \overset{9}{9} \\ \cancel{2} \cancel{9} \cancel{9} 114 \\ - 21 \\ \hline 29993 \end{array}$$

$$\begin{array}{r} \overset{2}{2} \overset{9}{9} \overset{9}{9} \\ \cancel{2} \cancel{9} \cancel{9} 114 \\ - 00021 \\ \hline 29993 \end{array}$$

Which langs can be accepted on a TM?

Which functions can be computed on a TM?

Def A language is called recursively enumerable
if it is the lang. accepted by some TM.