

Partner1: _____

Partner2: _____

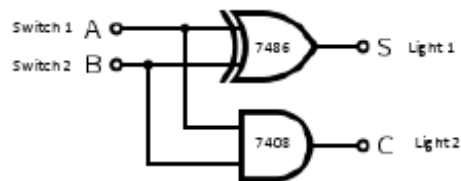
Half and Full Adder Lab

Purpose: To learn how to build half and full adders.

Materials: 1 – 7408 AND Gate
1 – 7432 OR Gate
1 – 7486 XOR Gate
Trainer and Power Supply
Hookup Wire
Wire Stripper

Method: ① Hook up the first circuit shown below. The logic switches (High and Low) are connected to the inputs A and B and the Sum and Carry are hooked up to X and Y of the output.

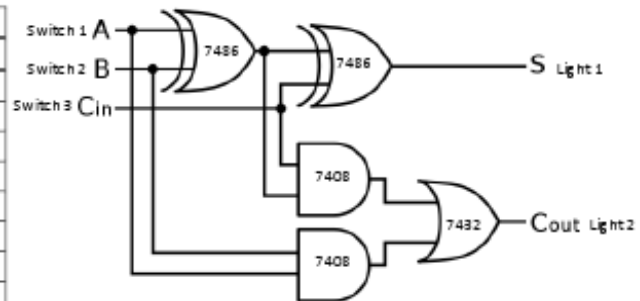
Inputs		Outputs	
A	B	Sum	Carry



② Record the output from this half adder in the table above. _____
Instructor's initials

③ Hook up our second circuit that is shown below.

Inputs			Outputs	
A	B	C _{in}	Sum	Carry



④ Record the output from this full adder in the table above. _____
Instructor's initials

Over ↻

Design Challenge: You and your partner are to design a circuit that would be able to add two sets of binary numbers two bits long.

For example: 1st number → $\overset{2^1}{A} \overset{2^0}{A}$ → 11 (example)
 2nd number → B B → $\begin{array}{r} 11 \\ +01 \\ \hline ?? \end{array}$

Schematic Diagram: ⓐ Draw the schematic diagram in the space below.

ⓑ Build the circuit and record the output in the table below.

Inputs				Outputs			Inputs				Outputs		
A ²	A ²⁰	B ²	B ²⁰	C ²²	C ²¹	C ²⁰	A ²¹	A ²⁰	B ²¹	B ²⁰	C ²²	C ²¹	C ²⁰

 Instructor's Initials