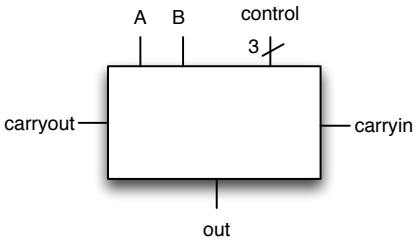
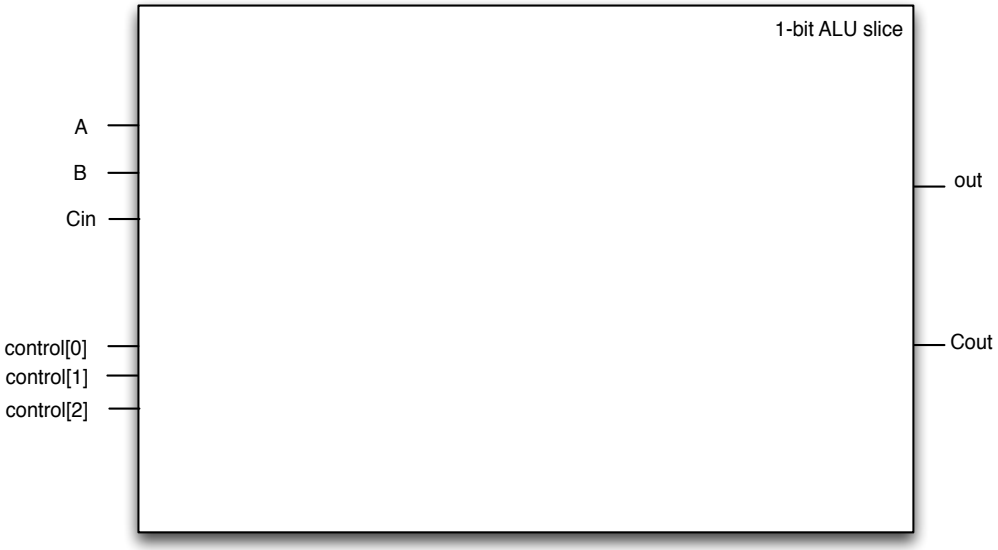



```
module alu1(out, carryout, A, B, carryin, control);
   output      out, carryout;
   input       A, B, carryin;
   input [2:0] control;
```

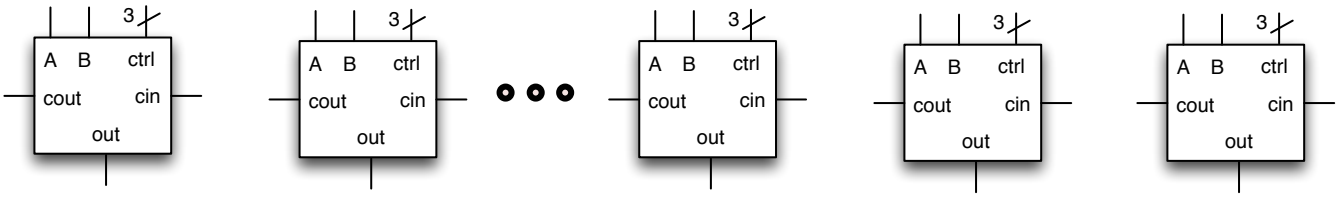
R_0	Output
0	undefined
1	undefined
2	$X_i + Y_i$
3	$X_i - Y_i$
4	X_i AND Y_i
5	X_i OR Y_i
6	X_i NOR Y_i
7	X_i XOR Y_i



Logic Unit control

R_1	R_0	Output
0	0	$G_i = X_iY_i$
0	1	$G_i = X_i + Y_i$
1	0	$G_i = (X_i+Y_i)'$
1	1	$G_i = X_i \oplus Y_i$

Which parts of the 1-bit adder/subtractor belong in inside the 1-bit ALU?
What should we do with the full adder's Cin input?
Where will "Sub" signal come from?
To what should the logic unit's control signals (R0, R1) be connected?
How do we select between the adder and the logic unit?
How do we control the selection?



Negative:

Zero:

Overflow:

Please bring this <u>completed</u> handout to discussion section/lab.