Module addsub

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An adder-subtractor can be built from an adder by optionally negating one of the inputs, which is equivalent to inverting the input then adding 1. The net result is a circuit that can do two operations: (a + b + 0) and (a + ~b + 1). See Wikipedia if you want a more detailed explanation of how this circuit works.

Build the adder-subtractor below.

You are provided with a 16-bit adder module, which you need to instantiate twice:

```
module add16 ( input[15:0] a, input[15:0] b, input cin, output[15:0] sum, output cout );
```

Use a 32-bit wide XOR gate to invert the b input whenever sub is 1. (This can also be viewed as `b[31:0]` XORed with sub replicated 32 times. See replication operator.). Also connect the sub input to the carry-in of the adder.