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## Full adder

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Design a **full adder**. A full adder is a circuit that performs a 1-bit addition receiving an input carry and generating an output carry.

### Specification

```
module full_adder(a, b, cin, sum, cout);  
  input a, b, cin;  
  output sum, cout;
```

### Input

- @a@ and @b@ are the two inputs.
- @cin@ is the input carry.

### Output

- @sum@ is the sum of the two bits and the input carry.
- @cout@ is the output carry.

### Problem information

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