--- Day 7: Some Assembly Required ---

This year, Santa brought little Bobby Tables a set of wires and bitwise logic gates! Unfortunately, little Bobby is a little under the recommended age range, and he needs help assembling the circuit.

Each wire has an identifier (some lowercase letters) and can carry a 16-bit signal (a number from 0 to 65535). A signal is provided to each wire by a gate, another wire, or some specific value. Each wire can only get a signal from one source, but can provide its signal to multiple destinations. A gate provides no signal until all of its inputs have a signal.

The included instructions booklet describes how to connect the parts together: `x AND y -> z` means to connect wires `x` and `y` to an AND gate, and then connect its output to wire `z`.

For example:

- `123 -> x` means that the signal `123` is provided to wire `x`.
- `x AND y -> z` means that the bitwise AND of wire `x` and wire `y` is provided to wire `z`.
- `p LSHIFT 2 -> q` means that the value from wire `p` is left-shifted by `2` and then provided to wire `q`.
- `NOT e -> f` means that the bitwise complement of the value from wire `e` is provided to wire `f`.

Other possible gates include `OR` (bitwise OR) and `RSHIFT` (right-shift). If, for some reason, you'd like to emulate the circuit instead, almost all programming languages (for example, C, JavaScript, or Python) provide operators for these gates.

For example, here is a simple circuit:

```
123 -> x
456 -> y
x AND y -> d
x OR y -> e
x LSHIFT 2 -> f
y RSHIFT 2 -> g
NOT x -> h
NOT y -> i
```

After it is run, these are the signals on the wires:

```
d: 72
e: 507
f: 492
g: 114
h: 65412
i: 65079
x: 123
y: 456
```

In little Bobby's kit's instructions booklet (provided as your puzzle input), what signal is ultimately provided to wire `a`?

Your puzzle answer was `16076`.

--- Part Two ---

Now, take the signal you got on wire `a`, override wire `b` to that signal, and reset the other wires (including wire `a`). What new signal is ultimately

provided to wire `a`?

Your puzzle answer was `2797`.

Both parts of this puzzle are complete! They provide two gold stars: **

At this point, you should return to your advent calendar and try another puzzle.

If you still want to see it, you can get your puzzle input.

You can also [Share] this puzzle.