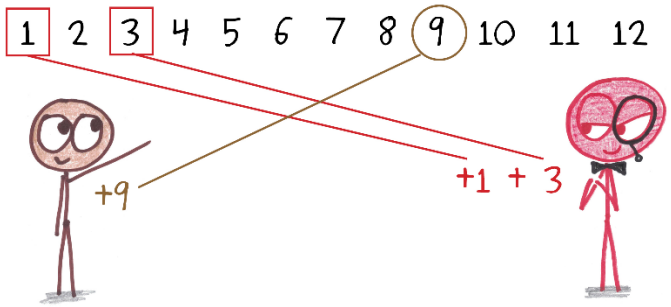
Taxman:

A Game of Careful Deductions

Robert Moniot calls this game, which has circulated for half a century, as an exercise in Intro Programming classes, a “golden oldie.” It’s a solo game, played against a ruthless, automatic opponent: the Taxman.

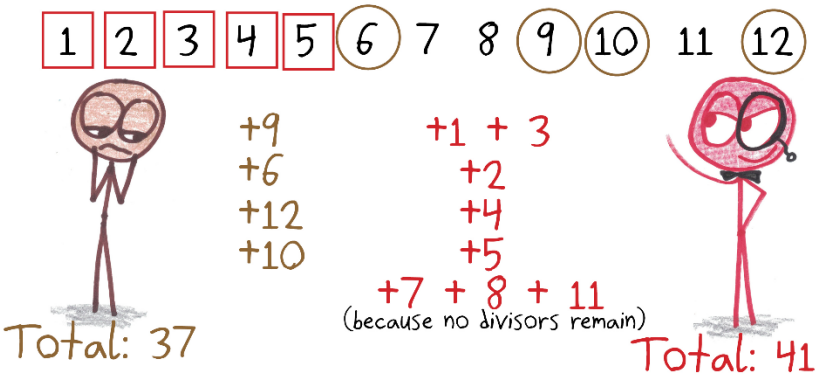
To begin, write down **all of the whole numbers up to some ceiling**, such as 12.

Then, **claim a number, and add it to your scor**e. **The Taxman receives all of the remaining numbers that divide it evenly**.

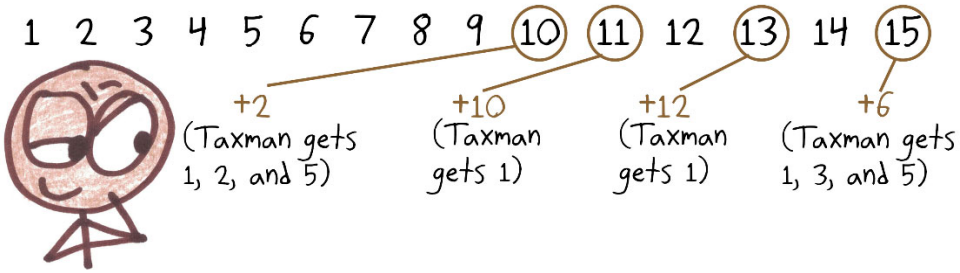


The challenge is that **the Taxman must receive something on every turn**. So, at this point, you cannot pick 7, because its only divisor (namely, 1) is already gone. Keep going until the only remaining numbers have no divisors left, at which point the Taxman gets them all.

The goal, of course, is to beat the Taxman.



As in “101 You’re Out,” a useful starting point is the “greedy algorithm”: on each turn, you pick the number that nets you the most points. For example, in the game with a ceiling of 15, the best first pick is 13 (which nets you 12 points).



But sometimes this will overlook a superior move. For example, after choosing 13, the greediest remaining choice is 15 (which nets you seven points). But that’d leave you unable to pick 9, which will later become a gift to the Taxman. Thus, it’s better to pick 9 first, and *then* 15.

Good luck thwarting that Taxman! Or, for a two-player game, take turns selecting numbers, with the non-selecting player serving as the Taxman for the turn.