

Math4theNines

Taxman

Tax Man is played like this: Start with a collection of pay cheques, from \$1 to \$12. You can choose any pay cheque to keep. Once you choose, the tax collector gets all pay cheques remaining that are factors of the number you chose. The tax collector must receive payment after every move. If you have no moves that give the tax collector a pay cheque, then the game is over and the tax collector gets all the remaining pay cheques. The goal is to beat the tax collector.

Example:

Turn 1: Take \$8. The tax collector gets \$1, \$2 and \$4.

Turn 2: Take \$12. The tax collector gets \$3 and \$6 (the other factors have already been taken).

Turn 3: Take \$10. The tax collector gets \$5.

You have no more legal moves, so the game is over, and the tax collector gets \$7, \$9 and \$11, the remaining pay cheques.

Total Scores:

You: $\$8 + \$12 + \$10 = \30 .

Tax Collector: $\$1 + \$2 + \$3 + \$4 + \$5 + \$6 + \$7 + \$9 + \$11 = \48 .

Questions:

Is it possible to beat the tax collector in this \$12 game? If so, how?

What is the maximum score you can get?

Bonus: What if you played the game with pay cheques from \$1 to \$24? How about \$1 to \$48?

[From Numberplay, New York Times, April 13
https://wordplay.blogs.nytimes.com/2015/04/13/finkel-4/?_r=0]