

Name: _____

Pid: _____

1. (10 points) In the subtraction game with *two* piles where players may subtract 1, 2 or 5 chips on their turn, identify the N- and P-positions. (Please do not forget to prove correctness of your answer.)

2. (10 points) Alice and Bob have several piles of chips. On each turn they can either remove 1 or 2 chips from one pile, or split a pile into two *nonempty* piles. Players take turns and a player that cannot make a move loses. Find the value of the Sprague–Grundy function for positions with one pile made of n chips. (Please do not forget to prove correctness of your answer.)