

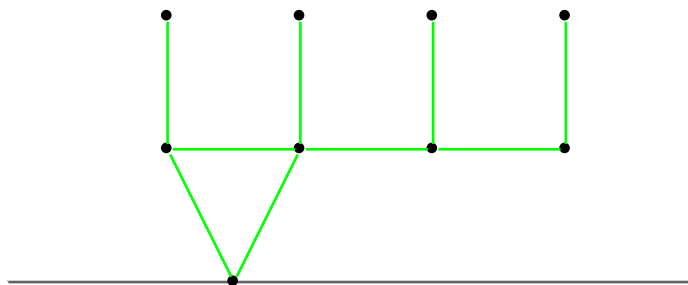
Name: \_\_\_\_\_ Score: \_\_\_\_\_

Math 576 Combinatorial Game Theory

Exam 2

Mar. 27, 2008

1. (15 points) Find the value of the following green Hackenbush game.



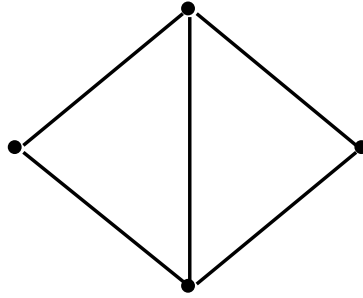
#	Score
1	
2	
3	
4	
5	
$\Sigma$	

2. (15 points)

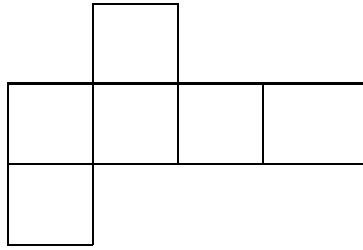
(a) Find the nim sequence for the subtraction game  $S(2, 7, 8)$ . What is the period of this sequence? (Hint: this nim sequence have exceptional values at the beginning.)

(b) (15 points) Two players play this subtraction game  $S(2, 7, 8)$  of two heaps of sizes 11, 13. What is the winning move for the first player?

3. (15 points) Find the value of the following Snort positions.



4. (15 points) Find the values of the following domineering game.



5. (20 points) Who wins the following game? What is his best move?

T		F		F	F	t	t	t	-2*
T		T	T		F	t	t	t	2*   1
T	T	T	T			F	F	F	1*   ↓

6. (20 points) Let  $G = 4 \mid 3 \parallel 1 \mid -1$ .

(a) Draw the thermograph of  $G$ .

(b) What is the confusion interval of  $G$ ?

(c) What is the mean value of  $G$ ?

(d) What is the temperature of  $G$ ?