

Math576 Combinatorial Game Theory

Homework 1

due midnight of Friday, Sept. 4, 2020

Submission method: Your answers to Homework 1 must be converted into a single pdf file. Then login to Blackboard. Click on assignments/homework1. Upload your answers. You can try to upload twice. Only last version will be graded.

1. Draw two red-blue Hackenbush games with the same game value $\frac{5}{8}$.
2. State the simplicity rule. Use it to find the following game values:

(a) $\{\frac{3}{4} | 2\frac{1}{4}\}$ (b) $\{-2, -1 | -\frac{1}{2}\}$ (c) $\{0 | \frac{3}{4}, 1\}$ (d) $\{0, 1 | 1\frac{1}{2}, 2\}$

3. Find the values of the following Hackenbush games.



4. Find the value of the following ski-jump game.

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	R		
			L

5. Find the value of the following Toad-and-Frog game. If **Right** **Left** starts first, what is his best first move? (Left moves Toads (T) eastwards and Right moves Frogs (F) westwards.)

T		F	
	F	T	
F			T