

Midterm (Instructions and sample problem)

Math 1230

Due Friday, February 24, 2023 by 5pm

This midterm is an opportunity for you to show what you've learned in this course so far. Please justify your answers. The exam is not meant to have any tricks or surprises. Please read everything carefully, including the instructions.

Instructions:

- Solutions must be submitted on Gradescope by Friday at 5pm. Solve as many problems as you can.
- **You may use the book and your lecture notes. You may not use any other resources. You must work by yourself.**
- You may either submit handwritten or typed solutions (please make your own tex file). If you write by hand, please try to be neat.
- **Please include a page with your name, and the following academic honesty statement:**
“I affirm that I have completed this exam without using any outside resources and that the work I am submitting is my own.”
- If you have any questions, please ask. Good luck!

Problem	Points	Possible
1		5
2		5
3		5
4		5
5		5
6		5
Total		30

Problem 1. Let T be a tree with a 2-coloring with n red and n blue vertices. Use a formula similar to the degree-sum formula to prove that there is at least one red leaf and at least one blue leaf.