

# GEOMETRIC FUNCTION THEORY GRADUATE COURSE, SPRING 2020

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## HOMEWORK ASSIGNMENTS

Problems are taken from J.B. Garnett and D.E. Marshall, “Harmonic measure,” Cambridge University Press, unless otherwise specified.

### Problem set 1

Chapter	Problems	Due date
1	1; 2; 5ab; 8	18 September 2020

### Problem set 2

Chapter	Problems	Due date
2	3abc; 5abc; 11ab	16 October 2020

### Problem set 3

Chapter	Problems	Due date
3	1i-1iv; 2; 7a-c	13 November 2020

### Problem set 4

Chapter	Problems	Due date
4	1; 5a,b; 6a; problem below	7 December 2020

**Problem:** Let  $\mathbb{D}$  be the unit disc and  $K$  a connected set such that the component of 0 of  $\mathbb{D} \setminus K$  is simply connected. Suppose  $\text{dist}(0, K) = r \in (0, 1)$ . Show that there is a universal constant  $c$  such that

$$\omega(0, \partial\mathbb{D} \setminus K, \mathbb{D} \setminus K) \leq cr^{1/2}.$$

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