

# Title

D. Zack Garza

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## Contents

0.1 Exercises . . . . .	1
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### 0.1 Exercises

#### Problem 1.

Let  $C$  denote the Cantor set.

1. Show that  $C$  contains point that is not an endpoint of one of the removed intervals.
2. Show that  $C$  is nowhere dense, meager, and has measure zero.
3. Show that  $C$  is uncountable.

#### Solution 1.

1. First we will characterize the endpoints of the removed intervals. Let  $C_n$  be the  $n$ th stage of the deleting process used to define the Cantor set; then

$$C_n = \bigcup [1, 2]$$