

# Contemplating the Infinite

If you've never thought much about the idea of "infinity" before, then the Great Theorems of Chapters 11 and 12 might be a little surprising. If you've seen them before, it's always good to stop and think a bit about why these theorems are surprising. The historical context in the readings in Dunham should help.

For fun, you might try to explain to a (non-mathematician) friend that there are infinite sets which are the same "size", and infinite sets which are different "sizes". You'll first have to explain what you mean by "size", of course! The second reading might help your explanation, since it can be used effectively in a high school classroom for talking about this topic.

## Readings

First reading: Dunham, Chapters 11 and 12

Second reading: The Infinite Hotel.

## Questions

**Question 1** *After the hotel appears to be full, a family arrives and asks for a room. After moving the patrons around, which room is the new family assigned?*

given

**Question 2** *In the story of "Hotel Infinity", what does George build, other than the hotel?*

**Multiple Choice:**

- (a) A fleet of buses. ✓
- (b) A courtroom.
- (c) Billboards.

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Learning outcomes:

Author(s):

See The Infinite Hotel at <http://www.jstor.org.proxy.lib.ohio-state.edu/stable/20876420>

(d) *An infinite parking garage.*

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**Question 3** *What are the most important points from this reading?*

**Free Response:**

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