

Math 250: Daily Preparation

Overview

This will be the penultimate daily prep assignment of the term. In class on Thursday, we'll consider Section 7.3; in so doing, we will see how the idea of an *equivalence relation* on a set A produces *equivalence classes*, a collection of disjoint subsets that *partition* the set A .

Basic learning objectives

These are the tasks you should be able to perform with reasonable fluency **when you arrive at our next class meeting**. Important new vocabulary words are indicated *in italics*.

- Know the definition of an *equivalence relation*, and be able to prove that a given relation is or is not an equivalence relation.
- Understand the definition of an *equivalence class* and be able to identify a given element's equivalence class within an equivalence relation.
- Understand the "bracket notation" to represent an equivalence class, such as $[a]$ for some element $a \in A$, where there's a known equivalence relation on A .

Advanced learning objectives

In addition to mastering the basic objectives, here are the tasks you should be able to perform in the near future **with practice and further study**:

- Understand how an equivalence relation partitions a set.
- Understand how the ideas and operations of set theory apply to partitions and equivalence classes.

Resources

Reading: Read pages 387-392

Watching: Here are some additional resources that have been developed to support your learning:

- Screencast 7.3.1: <http://gvsu.edu/s/wh>

While these screencasts are longer, they are very much worth your time. Indeed, as you continue to study and learn about relations and equivalence relations in our study of Chapter 7, any of the 7.*.* screencasts are valuable.

Questions

Respond to the following questions on separate paper, as explained in the document that describes guidelines and expectations for daily preparatory assignments. You should be prepared to show me your responses at the start of class; I will review your work briefly sometime before the end of class.

1. Complete Preview Activity 1 in Section 7.3 on pages 387-388.
2. Complete Preview Activity 2 in Section 7.3 on page 389.
3. Given a relation R on a set B , what is the "equivalence class of x " that is determined by R ? (Here I am asking you to explain what an "equivalence class" is in your own words.)