

## Math 250: Daily Preparation

### Overview

In our next meeting, we will begin studying the final collection of new ideas in the course, as found in Chapter 7 of our text; the subject of study is known as a *relation*. A relation is a fundamentally simple mathematical object, one that you have used (without using the word “relation”) many, many times in your mathematical education to date. In advance, it’s important to realize that a relation is a more general concept than that of *function*; as you study, think carefully about how functions and relations are, well, related.

### 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*.

- Understand what we mean by the language “a *relation* from set  $A$  to set  $B$ .”
- Know how we use the words *domain* and *range* in the context of a relation.
- In the special situation of a relation from a finite set  $A$  to itself, know how to represent the relation visually as a directed graph (see Screencast 7.1.2 for an overview).

### 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 the key relationship between functions and relations.
- Realize when a relation is not a function, with justification.
- Recognize a wide range of situations in mathematics where relations play a central role.

### Resources

*Reading*: Read pages 363-365 through Example 7.1.

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

- Screencast 7.1.1: <http://gvsu.edu/s/w4>
- Screencast 7.1.2: <http://gvsu.edu/s/w5>

### 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 7.1.
2. Complete Preview Activity 2 in Section 7.1.
3. What is a *relation* from a set  $P$  to a set  $Q$ ?
4. How do we find the *range* of a relation from  $P$  to  $Q$ ?