

# Chapter 2 Review Questions



Studying for a chapter examination is a personal process, one which nobody else can do for you. Simply take the time to review what you have done. Here are the new terms in Chapter 2.

And [2.2]	Element [2.1]	Proof by contradiction [2.4]
Associative property for union and intersection [2.3]	Empty set [2.1]	Proper subset [2.1]
Belongs to [2.1]	Equal sets [2.1]	Rational number [2.1]
Cardinal number [2.1]	Equivalent sets [2.1]	Roster method [2.1]
Cardinality [2.1]	Finite set [2.4]	Set [2.1]
Cartesian product [2.4]	Fundamental Counting Principle [2.4]	Set-builder notation [2.1]
Circular definition [2.1]	Infinite set [2.4]	Set theory [2.1]
Complement [2.1]	Integer [2.1]	Subset [2.1]
Contained in [2.1]	Intersection [2.2]	Uncountable set [2.4]
Countable set [2.4]	Member [2.1]	Uncountably infinite [2.4]
Countably infinite [2.4]	Natural number [2.1]	Universal set [2.1]
Counting number [2.1]	One-to-one correspondence	Union [2.2]
De Morgan's laws [2.3]	[2.4]	Venn diagram [2.1]
Description method [2.1]	Or [2.2]	Well-defined set [2.1]
Disjoint [2.1]		Whole number [2.1]

If you can describe the term, read on to the next one; if you cannot, then look it up in the text (the section number is shown in brackets). Next, review the types of problems in Chapter 2.

## TYPES OF PROBLEMS

Tell whether a set is well defined. [2.1]

Specify sets by roster and by description. [2.1]

Understand and use set-builder notation. [2.1]

Draw Venn diagrams showing subsets, equal sets, or disjoint sets. [2.1]

Distinguish between equal and equivalent sets, and find the cardinality of a given set. [2.1]

Distinguish the symbols  $\subset$ ,  $\subseteq$ , and  $\in$ . [2.1]

Find the complement of a set [2.1,2.2]

Find the union of two sets. [2.2]

Find the intersection of two sets. [2.2]

Recognize and draw the Venn diagrams for union, intersection, and complement. [2.2]

Solve survey problems involving two sets. [2.2]

Perform mixed operations using union, intersection, and complement [2.3]

Draw Venn diagrams for mixed operations using union, intersection, and complement. [2.3]

Draw Venn diagrams using three or more sets. [2.3]

Prove or disprove set statements using Venn diagrams. [2.3]

Solve survey problems involving three or more sets. [2.3]

Find the Cartesian product of two sets, and determine its cardinality. [2.4]

Find the cardinality of a given set. [2.4]

Determine whether sets have the same cardinality by placing them in a one-to-one correspondence. [2.4]

Classify a given set as finite or infinite. [2.4]

Show that a given set has cardinality  $\aleph_0$ . [2.4]

Show that a given set is infinite. [2.4]

Once again, see if you can verbalize (to yourself) how to do each of the listed types of problems.

Work all of Chapter 2 Review Questions (whether they are assigned or not). Work through all of the problems before looking at the answers, and *then* correct each of the problems. The entire solution is shown in the answer section at the back of the text. If you worked the problem correctly, move on to the next problem, but if you did not work it correctly (or you did not know what to do), look back in the chapter to study the procedure, or ask your instructor.

Finally, go back over the homework problems you have been assigned. If you worked a problem correctly, move on to the next problem, but if you missed it on your homework, then you should look back in the book or talk to your instructor about how to work the problem.

If you follow these steps, you should be successful with your review of this chapter.