

Foundations of Math 12 LG 7-8

Set Theory and Logic



INTRODUCTION:

Sets can be important in mathematics. They can be used to show relationships of numbers or objects. Using set theory is one of the key concepts that will lead to an understanding of probability. This guide will introduce you to the concepts around set theory and logic.



LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to:

- 1) understand types of sets and set notation.
- 2) determine the union and intersection of sets.
- 3) solve problems using set theory.
- 4) solve problems with conditional statements.



EVALUATION:

Complete the LG 7-8 quiz.



RESOURCES NEEDED:



Foundations of Mathematics 12 Text.

LEARNING ACTIVITIES:



Expectation #1: Understand types of sets and set notation.



1. [Watch and take notes on instructional video on Set Theory Vocabulary.](#)



2. In the Foundations of Mathematics 12 text, read Section 3.1 pages 146-147 and make sure you pay attention to the highlighted green terms.
3. Work through Example 1, 3, 4.
4. Read “In Summary” on page 154.
5. Complete #4 ,5 ,7, 9, 10, 11, 12, 16, 17 on pages 155-158.



6. [Watch and take notes on instructional video on Venn Diagrams.](#)



7. In the Foundations of Mathematics 12 text, read Section 3.2 page 160 “In Summary”.
8. Complete #1, 2, 3, 4 on pages 160-161.



Expectation #2: Determine the union and intersection of sets.



1. [Watch and take notes on instructional video on Intersection and Union of Sets.](#)



2. In the Foundations of Mathematics 12 text, read Section 3.3 page 163 the information in “Communication – Notation”.
3. Work through Examples 1-3 on pages 164-168.
4. Read “In summary” on page 171.
5. Complete #1, 3, 4, 6, 7, 8, 11, 12, 13, 14, 16 on pages 172-174.



Expectation #3: Solve problems using set theory.



1. [Watch and take notes on instructional video on Applications of Set Theory.](#)



2. In the Foundations of Mathematics 12 text, in Section 3.4 work through Examples 1 and 3 on pages 180-187.
3. Read “In Summary” on page 190.
4. Complete #2, 4, 5, 6, 9, 10 on pages 191-193.



Expectation #4: Solve problems with conditional statements.



1. [Watch and take notes on instructional video on Conditional Statements and Their Converse.](#)



2. In the Foundations of Mathematics 12 text, in Section 3.5 work through Examples 1-5 on pages 195-202.
3. Read “In Summary” on page 203.
4. Complete #1, 2, 5, 6, 10 on pages 203-205.



5. [Watch and take notes on instructional video on Inverse and Contrapositive.](#)



6. In Section 3.6, work through “Investigate the Math” on page 208.
7. Work through Examples 1-3 on pages 209-213.
8. Read “In Summary” on page 214.
9. Complete #1, 2, 5, 6, 7, 8, 12 on pages 214-216.

REVIEW

Now that you have completed some practice questions, you could review by doing any of the following:

- Chapter Self-Test on page 217.
- Practicing on page 220.
- LG 7-8 practice quizzes located [here](#).

Once you are ready, email your teacher for the LG 7-8 quiz.