

Theory of Functions Unit

Sections 1.4, 1.5, 1.6, 1.7, 1.8, 1.9 cover the behavior and properties of functions in general.

The first three sections we covered were basics needed to proceed to the theory of functions: equation solving in section A5 and some graphing basics in sections 1.1 and 1.2

After the theory of functions unit we will cover various types of functions in depth, exploring their properties and applications. We will return to section 1.3 and cover 1.10, and then cover chapters 2 and 3, with appendix A6 (solving inequalities) fit in at an appropriate time along the way.

We'll end the quarter with sections 10.2 thru 10.5, exploring graphs of conic sections

Sections 1.4, 1.5, 1.6:

We will do these sections combined together, looking at "functions" algebraically and graphically together, as presented in the notes on the website, rather than algebraically alone first and then graphically as presented in the textbook. Assignments have been listed by topic so that it will be easier for you to do the appropriate problems as we cover the topics, and to explore the concepts algebraically and graphically at the same time.

Identifying Functions: **Section 1.4:** 1,2,3,5,7,8,9,13,15,17 **Section 1.5:** 9 – 14

Function Notation: **Section 1.4:** 27, 29 **Section 1.5:** 5,7

Also do Planetarium Dome Paint Problem Page 7 of webnotes for chapter 1

Domain and Range

Section 1.4: 57, 59 – 63, 65, 67,69 **Section 1.5:** 1 – 4

Answers to domain problems done in class from webnotes will be posted on the website for reference

Even and Odd Functions: **Section 1.5:** 71 – 76

Behavior of Functions: **Section 1.5:** 31, 33, 35, 36, 37, 47, 51, 53, 57

Section 1.4: 47, 51 **Section 1.5:** 19, 21

Piecewise Functions: **Section 1.4:** 35, 37, 43, 94, 95 **Section 1.6:** 43, 44

Additional graphing practice problems, and solutions, will be posted on the website

Step Functions: **Section 1.6:** 29, 31

Average Rate of Change and Difference Quotient

Section 1.4: 79, 80 **Section 1.5:** 65, 67, 69

Library of Functions Worksheet: **Do Page 15 in webnotes** (Read section 1.6 as reference)

Applications: **Section 1.4:** 95 **Section 1.5:** 89 **Section 1.6:** 63

Graphing Calculator Assignment: Distributed as handout – will be collected

Section 1.7 Transformation of Functions: 1, 5, 7, 11, 15 – 18, 25, 27, 29, 33, 47–59 odd, 65

There will be additional practice worksheets, and solutions, posted on the website for drawing graphs that require 2 or 3 transformations – recommended practice for exam

Section 1.8: Combinations and Composition of Functions

Arithmetic Combination of Functions: 5, 7, 11, 13–23 odd

Composition of Functions: 35 – 53 odd

Applications: 55, 59, 64, 66, 67, 68

Section 1.9 Inverse Functions: 9 – 12, 15, 19, 21, 25, 26, 27, 37, 41, 49, 52, 65, 67, 82

Application problem from handout