

**Objectives Assessed by MA 153 Test 1**  
**Chapter 1 (not 1.6) and Chapter 2**  
(See also your *eGrade* assignments for more practice.  
Not all objectives will be on every test version.)

The test cycle for Test 1 is  
Mon Sept 29 – Fri. Oct 3  
***You must take a credible  
first attempt either Sept 29 or Sept 30***

1. Understand functional notation and use the graph, table, equation, or verbal description.  
Section **1.1** #3, 5, 6, 7, 13, 19cd and **Check Your Understanding** (p 52) #1-10, 30
2. Determine if  $y$  is a function of  $x$ .  
Section **1.1** #3, 19ab and **Example 6** on page 6 and **Chapter 1 Review** #1-5, 27, 30
3. Identify whether a function is a (totally) increasing or decreasing function or identify intervals on which it is increasing and decreasing.  
Section **1.2** #2, 14 and **Example 1, 2, 3** on pp 11-12 and **Chapter 1 Review** #1-5 and **Check Your Understanding** (p 53) #13-14 and **Chapter 2 Review** #6-11.
4. Determine the value of the average rate of change from a table of values, a graph, or an equation  
Section **1.2** #3, 4, 8 and **Example 2 and 4** on pp 12-14 and **Chapter 1 Review** #6, 7 and **Check Your Understanding** (p 53) #11-12, 16
5. Understanding the geometric interpretation of the average rate of change and the function notation for the average rate of change. Read bottom of page 13 and page 14  
Section **1.2** #9, 10 and **Check Your Understanding** (p 53) #8, 15, 17, 18, 24
6. Given the equation of a linear function, find and interpret its slope and axis intercepts as well as sketch its graph.  
Section **1.3** #7-11, 24, 26 and **Section 1.4** #29 and **Chapter 1 Review** #44
7. Find a linear model if given an initial value and an average rate of change.  
Section **1.3** #12, 14, 18 and **Section 1.4** #10, 14, 15 and **Chapter 1 Review** #22, 23, 38, 39, 40
8. Find a linear model if given any value (not necessarily its initial value) and an average rate of change.  
Section **1.3** # 22 and **Section 1.4** #12, 30 and **Chapter 1 Review** #15
9. Find a linear model if given any two points.  
Section **1.3** #12, 14, 18 and **Section 1.4** #11,16-23, 26, 27, 32 and **Section 1.5** # 19, 20, 21, 22 and **Chapter 1 Review** #22, 23, 38, 39, 40
10. Determine if a function is linear.  
Section **1.3** #1-6 and **Chapter 1 Review** #8, 9 and **Check Your Understanding** (p 53) #19, 20, 22
11. Find a linear model for budget constraint type problems.  
Section **1.4** #25, 35 and **Example 3** on pages 28-29 and **Chapter 1 Review** #37, 52
12. Understand the geometric properties of linear functions including:
  - when two lines are parallel and when they are perpendicular
  - when their  $y$ -intercepts are positive or negative
  - when they are increasing or decreasing (or neither)Section **1.5** #1-15, 21, 22 and **Chapter 1 Review** #15-21 and **Check Your Understanding** (p 53) #23-40, 43-45
13. Construct linear models and find intersection points to solve problems and make predictions.  
Section **1.5** #25, 26 and **Example 3** on pp 35-36 and **Check Your Understanding** (p 53) #41- 42 and **Chapter 1 Tools** (pp 57ff) # 33-44
14. Evaluate functions with values that are *expressions* as well as *numbers*.  
Section **2.1** #1-20, 22 and **Chapter 2 Review** #1, 2, 4, 6-11, 19, 20 and **Check Your Understanding** (p 93) #1-3, 5-10
15. Solve equations and inequalities and interpret the results.  
Section **2.1** #1-20 and **Chapter 2 Review** #22-26, 31 and **Check Your Understanding** (p 93) #4, 9 and **Chapter 2 Tools** (pp 97ff) # 1-51,77-85, 87, 94, 99
16. Understand the domain and range of a function. Find these if given a function represented by a graph, table, equation, or verbal description,  
Section **2.2** #1-27 and **Chapter 2 Review** #6-16, 27d and **Check Your Understanding** (p 93) #9, 11-20,
17. Use a graph, table, or an equation to evaluate a function or its inverse.  
Section **1.1** #5, 6, 19cd and **Section 2.4** #1-8,17 and **Chapter 2 Review** #28, 29, 32, 33, 34
18. Interpret expressions or equations which involve function notation and inverse function notation.  
Section **1.1** #13, 19cd and **Section 2.1** #24 and **Section 2.1** #24 and **Section 2.4** #9-17, 20, 21 and **Chapter 2 Review** #28, 29, 32, 33, 34 **Check Your Understanding** (p 93) #26-33
19. Determine the concavity of a function.  
Section **2.5** #11-17 and **Section 2.6** #14, 16 and **Check Your Understanding** (p 93) #34-39
20. Find and interpret the zeros of a function using the quadratic formula or factoring. Understand the factored form of a quadratic function. Find the maximum or minimum value.  
Section **2.1** #22 and **Section 2.6** #1-16, 18 and **Chapter 2 Review** #3 and **Check Your Understanding** (p 93) #40-48 and **Chapter 2 Tools** (pp 97ff) # 1-51,77-85, 87, 94, 99

Start your review by doing the following:

**Check Your Understanding Chapter 1** (page 53): 1-45

**Check Your Understanding Chapter 2** (page 93): 1-20, 26-48