

The test cycle for  
Test 3 is  
Mon. April 19 –  
Fri. April 23  
**You must take a  
credible first attempt  
either April 19 or 20**

## Objectives Assessed by MA 153 Test 3 Chapter 5 (not 5.4), 8.1, and Chapter 9 (not 9.5, 9.6)

(See also your *eGrade* assignments for more practice.  
All objectives may not be on every test version.)

### Hours for testing in the Test Center

Monday	9:15 a.m. to 4:30 p.m.
Tuesday	9:15 a.m. to 6:00 p.m.
Wednesday	9:15 a.m. to 6:00 p.m.
Thursday	9:15 a.m. to 6:00 p.m.
Friday	9:15 a.m. to 3:30 p.m.

- Understand vertical and horizontal shifts of a function as an outside/inside *additive* change to the function rule.  
Section **5.1** #3-25, 31-32, 35, 39, 40 and **Chapter 5 Review** #1-4, 19, 20, 23, 24, 30, 31, 35ad
- Understand vertical or horizontal reflections of a function as an outside/inside change to the function rule *by a negative sign*.  
Be able to combine these with shift transformations.  
Section **5.2** #2-17, 22, 23, 26, 27 and **Chapter 5 Review** #1-4, 19, 21, 22, 27, 28, 29, 31
- Identify whether a function is odd, even, or neither by looking at its graph, equation or table.  
Section **5.2** #18-21, 30, 32, 33, 40 and **Chapter 9 Review** 23abcdefg and 25
- If given that a function is odd or even and a point on its graph, determine another point.  
**Section 5.2** #28, 29 and **Chapter 5 Review** #5-11
- Understand vertical stretch or compression of a function as an outside *multiplicative* change to the function rule.  
Be able to combine these with reflections and shift transformations.  
**Section 5.3** #31-16, 20, 21-24, 28 and **Chapter 5 Review** #1-4, 19, 25, 35e, 36
- Understand the standard form, vertex form, and factored form of a parabola. Convert from standard form to vertex form by completing the square or using a grapher and a shift transformation. **Section 5.5** # 10-13, 15, 16, 18, 19
- Find the vertex, axis of symmetry, concavity, whether the graph is narrower, wider, or same shape as  $y = x^2$ , and intercepts if given its equation. Be able to sketch without a graphing calculator.  
**Section 5.5** #9-18, 20, 21, 25, 28 and **Chapter 5 Review** # 48
- Find a quadratic model if given its zeros or its vertex and at least one other point.  
**Section 5.5** #3-8, 14 and **Chapter 5 Review** #13-16
- Determine the composition  $f(g(x))$ . Simplify if necessary.  
**Section 8.1** #5, 7, 8, 11, 12, 13, 17-20, **Chapter 8 Review** #1-4, 7h, 16
- Know the six basic shapes of power functions (pages 378-379) and their equations. Know when they are flipped.  
Section **9.1** #7-10, 22-24 and Section **9.2** # 27, 28, 29 and **Chapter 9 Review** 1-2
- Find the formula for a power function  $f(x) = kx^p$  if given that it passes through two points  $(a, f(a))$  and  $(b, f(b))$ , where  $a = 1$ .  
**Section 9.1** #11-13, 18 and **Chapter 9 Review** 3
- Find the formula for a power function  $f(x) = kx^p$  if given that it passes through two points  $(a, f(a))$  and  $(b, f(b))$ , where  $a \neq 1$ .  
**Section 9.1** #19-21 and **Chapter 9 Review** 4
- Identify the degree, leading term, leading coefficient, and long-run behavior of a polynomial if given in expanded or factored form.  
**Section 9.2** #1-6, 9-12, 13 and **Chapter 9 Review** 5-8
- Determine the zeros of a polynomial if given its equation in expanded or factored form. If necessary, use a graphing calculator or try to factor.  
**Section 9.2** #7 and Section **9.3** #4-10, 34-39, 43-44 and **Chapter 9 Review** 9-10
- Use a graphing calculator to find maximum or minimum values of a function as well as intersections.  
**Section 9.2** #8, 18, 21
- Use the graph and the expanded form of a polynomial function to find its factored form.  
Section **9.3** #1-3 and **Chapter 9 Review** 9
- Understand the (short-run) behavior of a polynomial function near its zeros. See **Example 3** and the box on page 392.  
Section **9.3** #9-11, 26, 46
- Find the formula for a polynomial from its graph.  
Section **9.3** #12-24, 27-32, 45 and **Chapter 9 Review** 17-20, 22, 35
- Describe the long run behavior of a rational function. Report horizontal asymptotes, if they exist.  
Section **9.4** #7-12

Start your review by doing the following:

**Check Your Understanding Chapter 5** (page 225): 1-21, 24-29

**Check Your Understanding Chapter 9** (page 428): 1-43