Objectives Assessed by MA 153 Test 3 Fall 2014
Section 5.1, 5.2, 5.3, 5.5, 8.1, 9.1, 9.2, and 9.3
Monday, December 1 – Saturday, December 6

1. Understand vertical and horizontal shifts of a function as an outside/inside *additive* change to the function rule.
   Section **5.1** #2-25, 27-39, 41-45 and **Chapter 5 Review** #1-4, 17, 19, 26

2. 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** #4-6, 8-19, 24, 25, 28, 29 and **Chapter 5 Review** #1-4, 27, 28

3. Identify whether a function is odd, even, or neither by looking at its graph, equation or table.
   Section **5.2** #1-3, 20-23, 32, 34, 35, 42 and **Chapter 5 Review** 5-10 and **Chapter 9 Review** 37abcdefg and 39

4. If given that a function is odd or even and a point on its graph, determine another point.
   Section 5.2 #30 and 31

5. 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 #1-24, 28-38 and **Chapter 5 Review** #1-4, 18, 20, 23, 29, 37, 38

6. 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** #15, 16, 25-27

7. 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 #1-6, 19-29, 34-35 and **Chapter 5 Review** #41

8. Find a quadratic model if given its zeros or its vertex and at least one other point. **Section 5.5** #7-14, 29 and **Chapter 5 Review** #13-16

9. Determine the composition $f(g(x))$. Simplify if necessary. **Section 8.1** #5, 7-10, 18-21 and **Chapter 8 Review** #1-11, 15h, 46

10. Know the six basic shapes of power functions (pages 378-379) and their equations. Know when they are flipped.
    Section **9.1** #7-10, 25-31and **Chapter 9 Review** 7-8

11. 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, 19 and **Chapter 9 Review** 9

12. 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 #20-22 and **Chapter 9 Review** 10

13. Identify the degree, leading term, leading coefficient, and long-run behavior of a polynomial if given in expanded or factored form. **Section 9.2** #1-10, 16, 18 and **Chapter 9 Review** 11-14

14. 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** #12 and Section **9.3** #1-4, 8, 11-13, 37-42, 47 and **Chapter 9 Review** 15-16

15. Use the graph and the expanded form of a polynomial function to find its factored form. Section **9.3** #5-7

16. Understand the (short-run) behavior of a polynomial function near its zeros. See **Example 3** and the box on page 405.
    Section **9.3** #9, 10, 14, 49

17. Find the formula for a polynomial from its graph. Section **9.3** #15-20, 22-34, 48 and **Chapter 9 Review** 31-34, 36, 46, 47

Start your review by doing the following:
Check Your Understanding Chapter 5 (page 237): 1-21, 24-29
Check Your Understanding Chapter 8 (page 385): 2-7, 11-15
Check Your Understanding Chapter 9 (page 439): 1-9, 14-22, 25-28