Chapter 3
Section 3.4-3.5

Exercise: Graphs of Polynomial Functions
Draw a good graph of the following functions which demonstrates what happens at all x-intercepts.

a) $a(x) = x^3 - 3x + 2$

b) $b(x) = -3(3x - 4)^2(2x + 1)^4$

c) $c(x) = (x + 2)^2(x - 5)^3$

d) $d(x) = -x^4 + 4x^3 - 4x^2$

e) $e(x) = -x^3 + 4x$

f) $f(x) = x^3 + 4x^2 - x - 4$

Exercise: Inequalities of Polynomial Functions
Use the graphical method or the test-point method to solve the following polynomial inequalities.

a) $a(x) \leq 0$

b) $b(x) > 0$

c) $x^3 - 3x^2 - 4x + 12 > 0$

d) $d(x) \geq 0$

e) $x^4 + 4 > 5x^2$

f) $2x^2 - x^4 \leq 0$

g) $x^3 + x^2 + 2x - 4 > 0$

Exercise: Asymptotes of Rational Functions
Find all horizontal, vertical and slant asymptotes for the following rational functions.

a) $g(x) = \frac{x^2-4}{x+1}$

b) $h(x) = \frac{1}{x^2-4}$

c) $i(x) = \frac{3x-1}{x+1}$

d) $j(x) = \frac{x^2}{x+1}$

e) $k(x) = \frac{x^2-3}{x}$

Exam 2
Test Review

Topics Covered

1. Definition of Functions
2. Invertible Functions
3. Piecewise Functions
4. Domain and Range of Functions
5. Operations of Functions
6. Transformation Families of Functions
7. Functions of Variation
8. Vertex and Standard Form of Quadratic Functions
9. Finding Roots of Polynomial and Rational Functions
10. Solving Polynomial and Rational Inequalities

Most Commonly Missed Quiz Questions

1. Quiz 4 #2
2. Quiz 4 #3
3. Quiz 6 #1

Strategies for Factoring Polynomials

1. Find the Greatest Common Factor and factor it out.
2. Factoring by Grouping.
3. Factoring equations of Quadratic Type.
4. Using Quadratic Formula on quadratic polynomials.
5. Find Possible Rational Zeroes and test them using synthetic division.