Chapter 1: Functions and Graphs Summary

Section 1: Be Able To
- Plot points in the rectangular coordinate system
- Graph equations in the rectangular coordinate system
- Use a graph to determine intercepts
- **Apply the concepts**: Reference page 151 problems 55 - 60

Section 2: Be Able To
- Find the domain and range of a relation
- Determine whether a relation is a function
- Determine whether an equation represents a function (vertical line test)
- Evaluate a function
- Graph functions by plotting points
- Identify the domain and range of a function’s from its graph
- Identify intercepts from a function’s graph
- **Apply the concepts**: Reference pages 170 – 172 problems 99 - 104

Section 3: Be Able To
- Identify intervals on which a function increases, decreases, or is constant
- Use graphs to locate relative maxima or minima
- Identify even or odd functions and recognize their symmetries
- Find and simplify a function’s difference quotient
- **Apply the concepts**: Reference pages 185 – 186 problems 83 - 105

Section 4: Be Able To
- Calculate a line’s slope
- Write the point-slope form of the equation of a line
- Write and graph the slope-intercepts form of the equation of a line
- Graph horizontal and vertical lines
- Graph using the intercepts
- **Apply the concepts**: Reference pages 200 – 201 problems 87 - 92

Section 5: Be Able To
- Find slopes and equations of parallel and perpendicular lines
- Interpret slope as a rate of change
• Find a functions’ average rate of change
• **Apply the concepts:** Reference pages 212 - 213 problems 27 - 32

**Section 6: Be Able To**
• Recognize graphs of common functions
• Use vertical shifts to graph functions
• Use horizontal shifts to graph functions

**Section 7: Be Able To**
• Find the domain of a function
• Combine functions using the algebra of functions, specifying domain
• Form composite functions
• Determine domains for composite functions
• Write functions as composite
• **Apply the concepts:** Reference page 244 problems 97 - 102

**Section 8: Be Able To**
• Verify inverse functions
• Find the inverse of a functions
• Use the horizontal line test to determine if a functions has an inverse functions
• Use the graph of a one-to-one function to graph its inverse function
• Find the inverse of a function and graph both functions on the same axes
• **Apply the concepts:** Reference page 255 problems 65 - 69

**Section 9: Be Able To**
• Find the distance between two points
• Find the midpoint of a line segment
• Write the standard form of a circle’s equation
• Give the center and radius of a circle whose equation is in standard form
• Convert the general form of a circle’s equation to standard form
• **Apply the concepts:** Reference page 265 problems 71 - 72

**Section 10: Omitted**