

Section 1.5: Inequalities

- Understand interval notation and be able to graph solutions to inequalities on a number line.
- Be able to solve linear inequalities and compound inequalities involving “and” and “or” statements.
- Be able to solve polynomial and rational inequalities involving more than one factor by using test points or a sign chart.

Sections 2.1: The Coordinate Plane and 2.2: Graphs of Equations

- Understand the Cartesian Coordinates and be able to plot points given by ordered pairs.
- Be able to sketch the graph of an equation by plotting points.
- Understand and be able to find or identify the x and y -intercepts of a graph.
- Memorize and be able to apply both the distance formula and the formula for finding the midpoint of a line segment.
- Know and be able to apply the Pythagorean Theorem to a right triangle.
- Understand how to graph a circle from its equation (perhaps after completing the square) and how to find an equation for a circle from a description of its features.
- Be able to use completing the square to find the Center and radius of a circle by putting its equation into standard form.
- Know the definition of symmetry with respect to the x -axis, y -axis, and origin, and be able to determine whether or not a graph has one of these types of symmetry.

Section 2.3: Lines and Slope

- Understand the concept of slope and how to find the slope of a line given two points on the line.
- Memorize the three basic forms of a linear equation in two variables (general, slope/intercept, and point/slope)
- Be able to graph a line given its equation and be able to find its slope and intercepts.
- Be able to find an equation for a line by using a description of its features.
- Understand the relationship between the slopes of pairs of parallel lines and pairs of perpendicular lines.
- Understand the graphs, equations, and slopes of both vertical and horizontal lines.
- Understand linear modeling and be able to solve applications involving linear equations.

Sections 2.4: Functions and 2.5: Properties of Functions

- Understand the definition of a function and how to determine whether or not a given relation is a function.
- Be able to evaluate functions and to perform other computations with functions.
- Understand graphs of functions and how to find the domain and range of a function from its graph.
- Be able to find the intercepts of a function from its graph.
- Be able to recognize when the graph of a function is increasing, decreasing, or constant.
- Understand how to draw the graph of a function by plotting points.
- Be able to find a function related to an application problem.
- Be able to determine whether or not a function is odd or even.

Sections 2.6: A Library of Functions

- Be able to find an equation for a linear function. Also be able to graph linear functions.
- Be able to graph common functions such as $y = |x|$, $y = x^2$, $y = x^3$, and $y = \sqrt{x}$.
- Be able to graph and evaluate piecewise defined functions.

Section 2.7: Transformations of Functions

- Understand the geometric effect of each of the six types of transformations on the graph of a function [reflections across the x and y axes, vertical shifts, horizontal shifts, stretches, and compressions with respect to both x and y].
- Understand the six basic shifts of functions and be able to graph the shifted version of a function based on the graph of the original function.
- Be able to combine multiple shifts together in order to graph a resulting function based on the original graph (using intermediate graphs as needed).

Section 2.8: Combinations of Functions and Composite Functions

- Understand how to form new functions by finding the sum, difference, product, or quotient of two given functions.
- Be able to evaluate and to find simplified “shortcut” formulas for combinations of functions.
- Understand how to find the domain of a function or a combination of two functions.
- Understand composition of functions and how to compute values for a composite function using both the 2 step process and the “shortcut” formula.
- Be able to decompose a given function into two composite parts.
- Be able to find values for combinations and compositions of functions using a table of values.
- Be able to use combinations and composition of functions to solve applications problems.

Review Problems:

Chapter 1 Review p. 151 Problems # 75-98

Chapter 2 Review pp. 285-287 Problems # 1-96, 104-110

Review Problems: Chapter 2 # 1, 3, 5, 8, 9, 12, 14, 17, 20, 22, 23, 25, 26, 27, 28