

MATH 111 PRECALCULUS LEARNING GOALS

CHAPTER 1: FUNDAMENTALS

The student shall be able to:

1.1 REAL NUMBERS

- 1.1.1 Distinguish between natural, whole, integer, real, rational, and irrational numbers. *Section 1.1 #9 and 10*
- 1.1.2 Understand properties of real numbers. *Section 1.1 # 12, 13 and 16.*
- 1.1.3 Write verbal statements as inequalities. *Section 1.1 # 40.*
- 1.1.4 Know the definition of an element, set, and the union and intersection of sets.
- 1.1.5 Express intervals as inequalities and inequalities as intervals. *Section 1.1 # 42, 51*
- 1.1.6 Graph a set on a number line. *Chapter 1 Review # 5 and 7*
- 1.1.7 Given two sets, find their union and intersection. *Section 1.1 # 42 and 43.*
- 1.1.8 Find the distance between two given real numbers. *Section 1.1 # 75 and 76*

1.2 EXPONENTS AND RADICALS

- 1.2.1 Know exponential notation. *Chapter 1 review Concept check # 5a*
- 1.2.2 Know the Laws of Natural Number Exponents and use them to simplify expressions with natural number exponents. *Section 1.2 # 17 and 18.*
- 1.2.3 Know the meaning of a zero exponent, and the meaning of negative exponents. *Section 1.2 # 20.*
- 1.2.4 Use the Laws of Integer Exponents to simplify expressions with integer exponents. *Chapter 1 review #17.*
- 1.2.5 Know what an n^{th} root is. *Section 1.2 #7, 10 and 13.*
- 1.2.6 Know the properties of n^{th} roots, and use them to simplify radicals. *Section 1.2 #47, 48,50 and 52.*
- 1.2.7 Know the definition of rational exponents, and use the Laws of Exponents to simplify expressions with rational exponents. *Chapter 1 review #13, 14, 18b and 20a.*
- 1.2.8 Express exponential notation as radical notation and radical notation as exponential notation. *Section 1.2 # 12 and 13.*
- 1.2.9 Know the definition of scientific notation and use scientific notation in applications. *Chapter 1 Review #21 and 24*
- 1.2.10 Evaluate exponents and radicals of real numbers. *Chapter 1 Review #12, 13, 14, and 15*
- 1.2.11 Know and apply the rules for simplifying radical expressions. *Section 1.2 #74, 76, 78 and 82.*
- 1.2.12 Simplifying exponents and express the answer with positive exponents only. *Chapter 1 Review #20.*

- 1.2.13 Apply the properties and definitions of radicals to express a radical expression in simplest radical form. *Chapter 1 Review #19.*
- 1.2.14 Know how to rationalize the denominator of a radical expression. *Chapter 1 Review #49 and 51.*

1.3 ALGEBRAIC EXPRESSIONS

- 1.3.1 Know the definition of monomial, binomial, trinomial, and a polynomial of degree n . *Section 1.3 # 9- 14.*
- 1.3.2 Know how to apply properties of real numbers to add, subtract, and multiply polynomials. *Section 1.3 # 15, 18, 24 and 27.*
- 1.3.3 Know the special product formulas, sum and difference of same terms, square of a sum, square of a difference, cube of a sum and cube of a difference to multiply polynomials. *Section 1.3 # 31, 32, 41,45 and 46.*
- 1.3.4 Know the special factoring formulas, difference of squares, perfect squares, difference of cubes, sum of cubes, and factoring by grouping. *Section 1.3 #77, 83, 82, 85, and 89.*
- 1.3.5 Perform the indicated operations on polynomials and simplify. *Chapter 1 Review #41, 42.*
- 1.3.6 Factor a monomial from a polynomial expression completely. *Chapter 1 Review #25, 26, 28, 29, 33 and 37.*

1.4 RATIONAL EXPRESSIONS

- 1.4.1 Understand what a rational expression is. *Section 1.4 Concepts # 1.*
- 1.4.2 Find the domain of an algebraic expression. *Section 1.4 # 7, 10, 13 and 14.*
- 1.4.3 Simplify a rational expression after factoring the numerator and denominator. *Section 1.4 # 19, 21 and 22.*
- 1.4.4 Multiply and divide rational expressions and express them in reduced form. *Chapter 1 Review #43 and 44.*
- 1.4.5 Find least common denominator of algebraic expressions. *Chapter 1 Review Concept Check #14c.*
- 1.4.6 Add and subtract rational expressions with same and different denominators. *Chapter 1 Review #45 and 46.*
- 1.4.7 Simplify compound fractional expressions. *Chapter 1 Review #48.*
- 1.4.8 Simplify rational expressions with rational exponents. *Section 1.4 # 81 and 83.*
- 1.4.9 Know how to rationalize numerator. *Chapter 1 Review #50.*

1.5 EQUATIONS

- 1.5.1 Know the equality properties of equations. *Section 1.5 Concept # 1.*
- 1.5.2 Know the zero product property and use it to solve equations. *Section 1.5 # 46 and 50.*
- 1.5.3 Know how to solve a linear equation. *Chapter 1 Review #55 and 56.*
- 1.5.4 Know how solve a quadratic equation by factoring, using square root method, using the quadratic formula and by completing the squares. *Chapter 1 Review #59, 62 and 65.*
- 1.5.5 Find all the real solutions of the given equation. *Chapter 1 Review #55, 61 and 63.*
- 1.5.6 Solve rational equations and look for extraneous solutions. *Chapter 1 Review #66 and 67.*
- 1.5.7 Solve absolute value equations. *Chapter 1 Review #69.*
- 1.5.8 Solve radical equations, and equations reducible to quadratic form. *Section 1.5 #107, 108 and 110.*
- 1.5.9 Solve literal equations. *Section 1.5 #35 and 38.*

1.7 MODELING WITH EQUATIONS

- 1.7.1 Know how to express the given quantity in terms of indicated variable. *Chapter 1.7 #13 and 19*
- 1.7.2 Model a real-life application using linear equations and then solve it. *Chapter 1 Review #81, 82, and 83.*
- 1.7.3 Model a real-life application using quadratic equations and then solve it. *Chapter 1 Review #84 and 86.*
- 1.7.4 Model a real-life application using rational equations and then solve it. *Chapter 1 Review #85.*

1.8 INEQUALITIES

- 1.8.1 Solve linear inequalities and express the solution using interval notation and graph the solution set on a real number line. *Chapter 1 Review #87 and 88.*
- 1.8.2 Solve quadratic inequalities and polynomial inequalities using a sign analysis or the cut point method. *Chapter 1 Review #89 and 90.*
- 1.8.3 Solve rational inequalities using a sign analysis of the cut point method. *Chapter 1 Review #91 and 92.*
- 1.8.4 Solve absolute value inequalities. *Chapter 1 Review #93 and 94.*
- 1.8.5 Model a real-life application using linear inequality and then solve it. *Section 1.8 #123*
- 1.8.6 Use the graphs of two equations to solve the equation and inequality. *Chapter 1 Review #133, 135 and 137.*

1.9 THE COORDINATE PLANE, GRAPHS OF EQUATIONS, CIRCLES

- 1.9.1 Understand the terminologies of coordinate plane. Plot a point and graph the region in a coordinate plane. *Chapter 1 Review #97*
- 1.9.2 Know the distance and midpoint formulas to find the distance and midpoint between given two points. *Section 1.9 #41.*
- 1.9.3 Determine whether the given point is on the graph of the given equation. *Section 1.9 #52.*
- 1.9.4 Find the distance and midpoint between two given points and use it to find determine whether the given points are the vertices of a triangle or rectangle. *Chapter 1 Review #95 and 99.*
- 1.9.5 Sketching the graph of equation in two variables by plotting points. *Chapter 1 Review #107, 109 and 111.*
- 1.9.6 Know the geometric and algebraic definition of x- and y- intercepts. *Section 1.9 Concepts #5.*
- 1.9.7 Find the x- and y- intercepts from the given graph and equation. *Chapter 1 Review #107, 109 and 111.*
- 1.9.8 Know the equation of the circle in standard form. *Chapter 1 Review Concept Check #32.*
- 1.9.9 Find the center and radius from the given equation of circle in standard form. *Section 1.9 #83 and 87.*
- 1.9.10 Find the center and radius of the circle not in standard form by completing the square. *Chapter 1 Review #103 and 104.*
- 1.9.11 Know the types of symmetry and test a given equation for symmetry. *Chapter 1 Review #113, 115 and 117.*

1.10 LINES

- 1.10.1 Understand the meaning of slope. *Section 1.10 Concepts #1.*
- 1.10.2 Find the slope of a line using the given graph and using the slope formula between two given points on the line. *Section 1.10 #15 and 19.*
- 1.10.3 Know properties of slopes of rising, falling, horizontal and vertical lines. *Section 1.10 Concepts # 5 and 6.*
- 1.10.4 Know the equation of a line in point slope form. *Section 1.10 Concepts # 3.*
- 1.10.5 Know the equation of a line in slope-intercept form. *Section 1.10 Concepts # 4.*
- 1.10.6 Use a graphing device to graph the family of lines in the same viewing rectangle. *Section 1.10 #54.*
- 1.10.7 Relationship between the slopes of two parallel lines and two perpendicular lines. *Chapter 1 Review Concept Check #37.*
- 1.10.8 Determine whether the given lines are parallel, perpendicular or neither. *Section 1.10 #75 and 77.*

- 1.10.9 Find the equation of a line which satisfies the given conditions. *Chapter 1 Review #123, 124 and 125.*
- 1.10.10 Find the equation of a horizontal and vertical lines passing through the given points. *Chapter 1 Review #127 and 128.*
- 1.10.11 Find the equation of the line passing through the given point and parallel to or perpendicular to the given line. *Chapter 1 Review # 129 and 130.*
- 1.10.12 Know how to use slopes to determine whether the given points are vertices of a right triangle or rectangle. *Section 1.10 # 80 and 81.*
- 1.10.13 Interpret the meaning of slope in a real-life problem. *Section 1.10 #90*
- 1.10.14 Model a real-life problem using linear relationship. *Chapter 1 Review #132.*

1.11 SOLVING EQUATIONS AND INEQUALITIES GRAPHICALLY

- 1.11.1 Know how to solve one variable equations and inequalities algebraically and using a graphical device. *Section 1.11 # 6, 9 and 15.*
- 1.11.2 Use a graphing device to solve equations graphically. *Chapter 1 Review #139, 140 and 141.*
- 1.11.3 Use a graphing device to solve inequalities graphically. *Chapter 1 Review #143, 144 and 145.*

1.12 MODELING VARIATIONS

- 1.12.1 Know the meaning of directly proportional, inversely proportional, and jointly proportional. *Section 1.12 Concepts # 1, 2, 3 and 4.*
- 1.12.2 Write an equation that expresses the given statement. *Chapter 1 Review #149 and 150.*
- 1.12.3 Model a real- life application using variation. (a) Write the statement as a variation. (b) Determine the constant of proportionality and answer questions about the models. *Chapter 1 Review #143, 144 and 145.*

CHAPTER 2: FUNCTIONS

The student shall be able to:

2.1 FUNCTIONS

- 2.1.1 Know the definition of a function and how to interpret functions in four different ways: using arrow notation, ordered pair notation, using a table, and using a formula. *Chapter 2 Review #1, 3 and 6.*
- 2.1.2 Determine whether the given equation defines y as a function of x . *Chapter 2 Review #39 and 41.*
- 2.1.3 Evaluate the given function for the given value and expression. *Chapter 2 Review #9 and 10.*
- 2.1.4 Evaluate a piecewise defined function. *Section 2.1 #32 and 33.*
- 2.1.5 Find and simplify the difference quotient of the function. *Section 2.1 #46 and 49.*
- 2.1.6 Know the definition of domain and range. *Section 2.1 Concepts #2.*
- 2.1.7 Find the domain and range of the given functions. *Chapter 2 Review #13 and 14.*
- 2.1.8 Find the domain of the given functions. *Chapter 2 Review #15, 16, 17 and 18.*
- 2.1.9 Sketch the graph from the given data representing a function. *Section 2.1 #90, 91 and 92.*
- 2.1.10 Use the given real-life model to evaluate the function and interpret what the values represent. *Section 2.1 #79 and 80.*
- 2.1.11 Create a piecewise defined function using a real-life application and evaluate it. *Section 2.1 #88.*

2.2 GRAPHS OF FUNCTIONS

- 2.2.1 Understand the form and key properties for linear, power, root, reciprocal and absolute value functions and sketch the graph of the function by making table of values. *Chapter 2.2 #10 and 17.*
- 2.2.2 Sketch the graph of the piecewise function. *Chapter 2.2 #37, 38 and 43.*
- 2.2.3 Know the definition of vertical line test and use it to determine whether the given relation is a function or not. *Chapter 2.2 #51.*
- 2.2.4 Determine the domain and range from the given graph of the function. *Chapter 2.2 #55 and 56.*
- 2.2.5 Use the given graph to create a piecewise defined function. *Section 2.2 #49.*
- 2.2.6 Use a graphing device to graph the family of functions. *Section 2.2 #70, 71 and 74.*
- 2.2.7 Model a real-life applications as a piecewise function and graph it. *Section 2.2 #82.*

2.3 GETTING INFORMATION FROM THE GRAPH OF A FUNCTION

- 2.3.1 Use the given graph to evaluate the function and find the domain and range from the given graph of the function. *Section 2.3 #7 and 8.*
- 2.3.1 Determine the intervals where the function is increasing and decreasing, and find the local extrema of a function based on the graph of the function. *Section 2.3 #43 and 46*
- 2.3.2 Use a graphing device to determine the Intervals where the function increases and decreases. *Chapter 2 Review #49 and 50.*
- 2.3.3 Use a graphing device to locate the local maximum and local minimum of a function. *Chapter 2 Review #75 and 77.*
- 2.3.4 Net change: Find the net change between the given x values from the graph and from the given function. *Chapter 2 Review # 53 and 55.*
- 2.3.5 Solve equations and inequalities graphically. *Section 2.3 # 9.*

2.5 LINEAR FUNCTIONS AND MODELS

- 2.5.1 Express linear function in the form $f(x) = ax + b$.
- 2.5.2 Understand the interpretation of the slope as a rate of change and be able to interpret what the slope means when the axes are labeled. *Section 2.5 # 39, 40.*
- 2.5.3 Determine whether the given function is linear. *Chapter 2 Review # 57 and 58.*
- 2.5.4 Express verbal description as a linear function. *Section 2.5 # 28.*
- 2.5.5 Given a linear function. (a) Sketch the graph of the function. (b) What is the slope of the graph? (c) What is the rate of change of the function? *Chapter 2 Review # 59.*
- 2.5.6 Determine the slope and rate of change from the real-life linear model. *Section 2.5 # 40.*
- 2.5.7 Write a linear function that describes a relationship between two quantities, use it to solve and interpret the slope. *Section 2.5 # 43, 49 and 50.*

2.6 TRANSFORMATION OF FUNCTIONS

- 2.6.1 Understand translations by sketching the graphs of $f(x)+c$ and $f(x+c)$ given the graph of $f(x)$. *Section 2.6 # 7, 8, 19, 20 24a, 24b, 29, 31, 33, 34.*
- 2.6.2 Understand reflections by sketching the graphs of $-f(x)$ and $f(-x)$ given the graph of $f(x)$. *Section 2.6 # 9a, 10a, 13a, 14a, 22a, 23c, 37, 38, 48*
- 2.6.3 Understand vertical and horizontal stretching and shrinking of graphs by sketching the graphs of $af(x)$ and $f(ax)$ given the graph of $f(x)$. *Section 2.6 # 9b, 10b, 13b, 14a, 41, 42,*

43.

- 2.6.4 Suppose the graph of f is given. Describe how the graph of each function is obtained from the graph of f . *Chapter 2 Review # 71(a),(b), (c), (d), (e) and (f).*
- 2.6.5 Know the basic graphs of $f(x) = ax + b$, $f(x) = b$, $f(x) = x^2$, $f(x) = x^3$, $f(x) = \sqrt{x}$, $f(x) = x^n$, and $f(x) = |x|$.
- 2.6.6 Use transformations to sketch the graph of the given function from the known graph of parent functions. *Chapter 2 Review # 27, 30, 34, 36 and 37.*
- 2.6.7 Given the graph of a function apply transformation to sketch the graph of required function. *Chapter 2 Review # 72.*
- 2.6.8 Use a graphing device to sketch the graph of family of functions in same viewing rectangle and interpret how each graphs are related. *Section 2.6 # 78*
- 2.6.9 Find the equation of the final transformed function f obtained after applying the indicated transformation to the given function. *Section 2.6 # 57, 59 and 61.*
- 2.6.10 Use the given two graphs and explain how the graph of one function can be obtained from the second one by applying transformations. *Section 2.6 # 93.*
- 2.6.11 Know the definition of even-odd functions.
- 2.6.12 Determine whether the given functions are even, odd or neither. *Chapter 2 Review # 73.*

2.7 COMBINING FUNCTIONS

- 2.7.1 Know how to create new functions from given functions by using the algebra of functions (sums, differences, quotients, and products) and find the domain of the new functions. *Section 2.7 #13 and 14.*
- 2.7.2 Given two functions f and g , find $f+g$, $f-g$, $f \cdot g$, f/g and their domains. *Section 2.7 #8, 13 and 15.*
- 2.7.3 Graphical addition: Use the given two graphs of f and g to find $f+g$. *Section 2.7 #22.*
- 2.7.4 Know the definition of the composite function and its domain.
- 2.7.5 Evaluate composite functions using the given graph of functions. *Section 2.7 #35 and 36.*
- 2.7.6 Evaluate composite functions using the given function as formulas. *Chapter 2 Review # 84(c) and 84(d).*
- 2.7.7 Evaluate composite functions using functions given as tables. *Section 2.7 #39-46.*
- 2.7.8 Find the composite functions algebraically and their domain. *Chapter 2 Review # 85 and 86.*
- 2.7.9 Decompose a composite function into its components form. *Chapter 2 Review # 88.*
- 2.7.10 Model a real-life application using composite function. *Section 2.7 # 78 and 82.*

2.8 ONE-TO-ONE FUNCTIONS AND THEIR INVERSES

- 2.8.1 Know the definition of a one-to-one function. *Section 2.8 # 17, 18, 19.*
- 2.8.2 Use the horizontal line test to determine whether the graph of the given function is one-to-one. *Section 2.8 # 7, 8, 10.*
- 2.8.3 Determine algebraically whether the given function is one-to-one. *Chapter 2 Review # 89 and 90.*

- 2.8.4 Determine graphically whether the given function is one-to-one. *Section 2.8 # 7 -10.*
- 2.8.5 Determine whether the given function is one-to-one over its domain. *Chapter 2 Review #89 and 90.*
- 2.8.6 Know that an inverse of a function is the result of reversing the assignments or switching x 's and y 's. *Section 2.8 # 31, 32, 33, 34.*
- 2.8.7 Know how to find the inverse of a function when the function is designated using a table or set of ordered pairs.
- 2.8.8 Given the graph of a one-to-one function, know how to evaluate the inverse of a function at various values. *Section 2.8 # 29, 30.*
- 2.8.9 Evaluate the inverse function at a specific value. *Section 2.8 # 26 and 27.*
- 2.8.10 Know how the graph of inverse function is obtained from the given graph of the function. *Section 2.8 # 85, 86, 88.*
- 2.8.11 Find the formula for the inverse of the given function. *Chapter 2 Review # 95, 96, 97 and 98.*
- 2.8.12 Use the inverse function property to determine whether the given functions are inverse of each other. *Section 2.8 # 43 and 45*
- 2.8.13 Show that the given function is one-to-one, sketch the graph of the given function, use the graph to sketch the graph of its inverse, then find the formula for the inverse function. *Chapter 2 Review # 102.*
- 2.8.14 Know how to restrict the domain of the given function to make it one-to-one and then find its inverse. *Section 2.8 # 87 and 88.*

MODELING WITH FUNCTIONS

1. Identify the quantity you want to model and express it as a function of the other quantities in the problem. Assign a symbol x , to one variable, and express the other variables in terms of this symbol. *Page 240 # 3,4, 12, 13 and 14.*
2. Construct the model as a function of single variable and use this function to solve the real-life application. *Page 240 # 21,22, 25, 26 and 27.*
3. Apply the model in one variable to determine algebraically and/or graphically maximum/minimum attributes for two-dimension and three-dimension problems. *Page 240 # 26 and 27.*

CHAPTER 3: POLYNOMIAL AND RATIONAL FUNCTIONS

The student shall be able to:

3.1 QUADRATIC FUNCTIONS AND MODELS

- 3.1.1 Understand what is meant by the standard form and general form of a quadratic function. *Chapter 3 Review Concept check 1a), 2a).*
- 3.1.2 Express a quadratic function in standard form by using completing the square or the

formula $x = -\frac{b}{2a}$ to graph the function. *Chapter 3 Review #3*

- 3.1.3 Find the maximum or minimum value of the quadratic function. *Chapter 3 Review #5 and #6*
- 3.1.4 Solve extreme value word problems by creating a model of a quadratic function. *Chapter 3 Review #7 and #8*

3.2 POLYNOMIAL FUNCTIONS AND THEIR GRAPHS

- 3.2.1 Understand the definition of a zero of a polynomial and be able to find zeros of polynomials of degree 2 or lower in standard form, or higher degrees in factored form. *Section 3.2 #31,35,37*
- 3.2.2 Identify a polynomial function in standard form know the meaning of “degree”, “constant term”, “leading term”, and “leading coefficient” and how each affects the graph of a polynomial function. *Section 3.2: page 255*
- 3.2.3 Know that polynomials are continuous (no holes or breaks), and have no corners and how this dictates how to graph a polynomial function. *Section 3.2: #1, 2, 17, 19, and 21*
- 3.2.4 Know the intermediate value theorem for polynomials and its importance in graphing a polynomial function. *Section 3.2: page 259*
- 3.2.5 Graph the polynomial by transforming an appropriate graph of the form $y = x^n$. Show clearly all x- and y- intercepts. *Chapter 3 Review #11*
- 3.2.6 A polynomial function P is given. (a) Describe the end behavior. (b) Use zeros to sketch a graph of P. Make sure the graph shows all intercepts. *Chapter 3 Review #16*
- 3.2.7 A polynomial function P is given. (a) Determine the multiplicity of each zero of P. *Chapter 3 Review #20*
- 3.2.8 Understand arrow notation used in describing a function as $x \rightarrow \infty$ and $x \rightarrow -\infty$.
- 3.2.9 Use a graphing device to graph the polynomial. Find the x- and y-intercepts and the coordinates of all local extrema, correct to the nearest decimal. Describe the end behavior of the polynomial. *Chapter 3 Review #23*
- 3.2.10 Create polynomial mathematical models, graph the models on a calculator, and answer questions about the model. *Section 3.2 #89*
- 3.2.11 Create a polynomial mathematical model that reduces to a quadratic function, and answer questions about the extreme value of the function. *Section 3.2 #54 #63*
- 3.2.12 Local extrema of polynomials: Given the graph of a polynomial, be able to determine the sign of the leading coefficient as well as whether the degree of the polynomial is odd or even by the end behavior, and the minimum degree of the polynomial by the number of local extrema. *Section 3.2 # 85*

3.3 DIVIDING POLYNOMIALS

- 3.3.1 Use the division algorithm to find the quotient and remainder of two polynomials. *Chapter 3 Review #32*
- 3.3.2 Apply the remainder theorem to evaluate a polynomial or find a remainder of the

- quotient of two polynomials. *Chapter 3 Review #36 and 37.*
- 3.3.3 Use the factor theorem to show that a number, say 4 is a zero of a polynomial, and that $x-4$ is a factor of a polynomial. *Chapter 3 Review #36 and 37.*
- 3.3.4 Find a polynomial of a specified degree given its zeros. *Chapter 3 Review #53 and 54.*
- 3.3.5 Use a graphing device to find all real zeros of a polynomial. *Chapter 3 Review #70 and 71.*
- 3.3.6 Given a polynomial function P , find all real zeros of P , and factor P completely into linear and irreducible quadratic factors with real coefficients. *Chapter 3 Review #74.*

3.6 RATIONAL FUNCTIONS

- 3.6.1 For a rational function, know how to identify the horizontal and vertical asymptotes and what they mean. *Section 3.6 # 31, 33, 35, and 41*
- 3.6.2 Given a rational function $r(x)$ with the numerator either of degree 0 or 1, and denominator of degree 1, find all vertical and horizontal asymptotes, all x - and y -intercepts, and state the domain and range. Also graph the function using transformations of the graph of $1/x$ to sketch the graph of $r(x)$. *Chapter 3 Review #75, 76, and 79*
- 3.6.3 Graph the rational function $r(x)=p(x)/q(x)$ where p and q are polynomials of degree 1-4. Show all x -, and y - intercepts, and all vertical and horizontal asymptotes, and state the domain and range, and use arrow notation to describe the function behavior. *Chapter 3 Review #81 and 83, 86 and 87.*

3.7 POLYNOMIAL AND RATIONAL INEQUALITIES

- 3.7.1 Solve polynomial inequalities using a sign analysis or the cut point method. *Chapter 3 Review #93, 94, and 96.*
- 3.7.2 Solve rational inequalities using a sign analysis or the cut point method. *Chapter 3 Review #97, 98, and 100.*
- 3.7.3 Find the domain of a function that is the even root of a polynomial function by using a sign analysis or the cut point method. *Chapter 3 Review #101 and 102.*
- 3.7.4 Solve polynomial and rational inequalities graphically and understand how this relates to the cut point method of solving inequalities. *Chapter 3 Review #103 and 104.*