

**MATH 022 LEARNING OBJECTIVES:**

Upon successful completion of Math 022, the student should be able to:

1. Solve other types of equations (more advanced than linear and quadratic, assumed prerequisite topics)
2. Solve absolute value equations and inequalities
3. Solve polynomial and rational inequalities
4. Write various forms of equations of circles
5. Write equations of lines
6. Identify and distinguish between relations and functions from graphs and equations
7. Using function notation, evaluate functions
8. Determine the domain of a function given an equation
9. Understand, identify, and determine properties of a function's graph
10. Know and sketch graphs of basic functions:  $y = b$ ,  $y = x$ ,  $y = x^2$ ,  $y = |x|$ ,  $y = x^3$ ,  $y = \sqrt{x}$ ,  $y = \sqrt[3]{x}$ ,  $y = \frac{1}{x}$
11. Understand piecewise functions
12. Transform basic graphs using horizontal shifts, shrinks and compressions, reflections, and vertical shifts, and combinations of transformations
13. Add, subtract, multiply, divide, and compose functions and find the resulting domains
14. Understand the definition of a one-to-one functions and apply it to finding inverse functions
15. Analyze quadratic functions
16. Translate applications of quadratic functions to models and solve
17. Sketch graphs polynomial functions
18. Sketch graphs rational functions
19. Understand characteristics of exponential functions,  $y = b^x$
20. Understand characteristics of logarithmic functions
21. Solve exponential equations
22. Solve logarithmic equations