

Math 110 (Section 002) Learning Objectives

Students should be able to do the following things by the end of each respective unit. Additions may be made as the term progresses.

Functions

This unit will be expanded throughout the term as your library of functions increases.

1. Explain what a function is.
2. Give examples of functions and their domains, including functions with restricted or unusual domains (eg. $\mathbb{R} \setminus \{1, 2, 3\}$) or functions whose domains are sets other than real numbers.
3. Calculate the domain of functions of the form $\frac{p(x)}{q(x)}$ where p and q are compositions of polynomials and square roots.
4. Sketch the functions x , x^2 , x^3 , \sqrt{x} , $\frac{1}{x}$ and $|x|$.
5. Sketch the graphs of functions obtained from x , x^2 , x^3 , \sqrt{x} , $\frac{1}{x}$ and $|x|$ via one or more of the following transformations: vertical and horizontal shifts, vertical and horizontal dilations and reflections across the vertical and horizontal axes.
6. Explain, using a picture or examples, what the composition of two or more functions means.
7. Explain, using an example, why function composition is not commutative.