One-to-one Functions

UNIVERSITY OF MINNESOTA

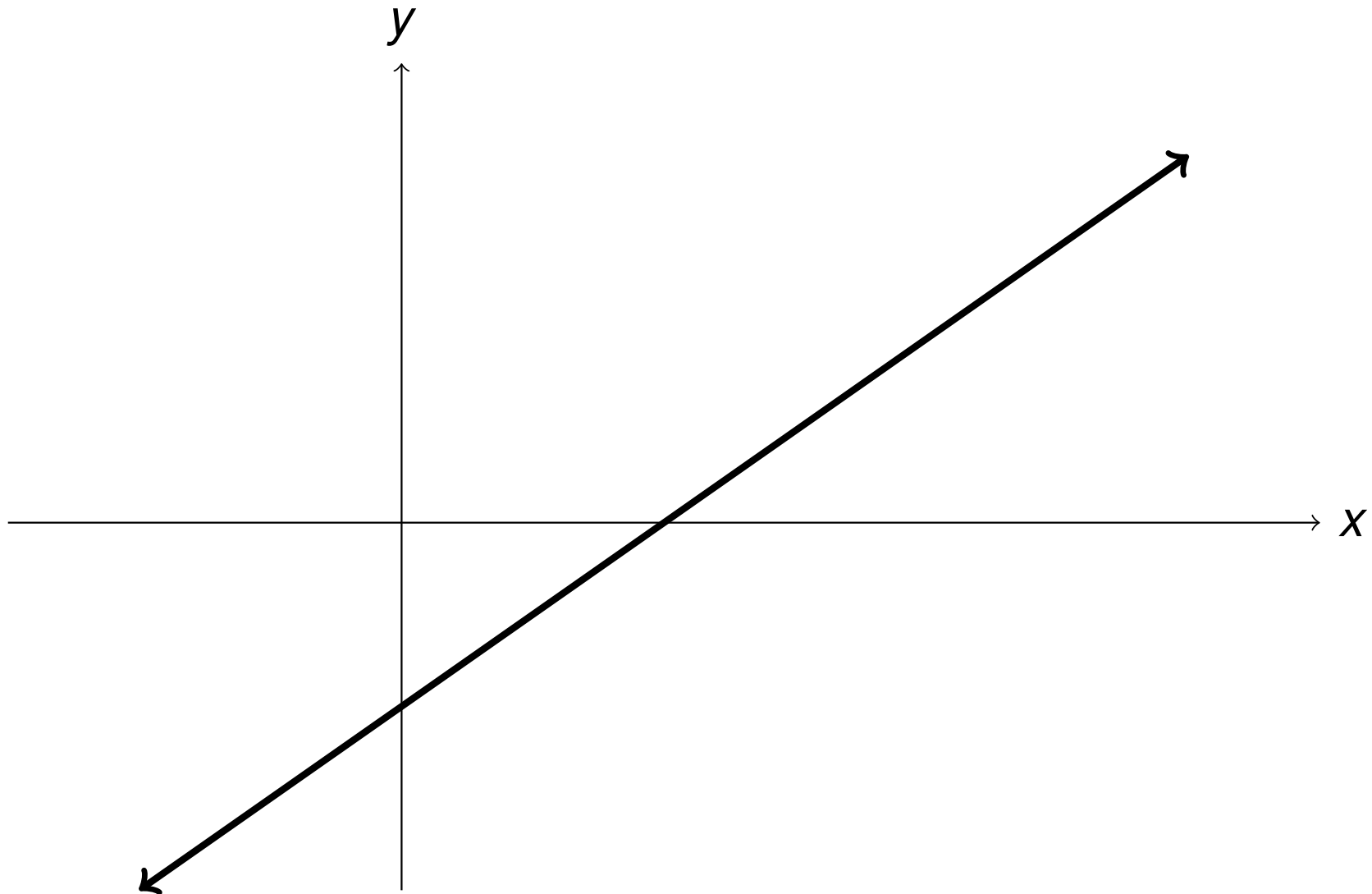# Preliminaries and Objectives

Preliminaries

- Functions

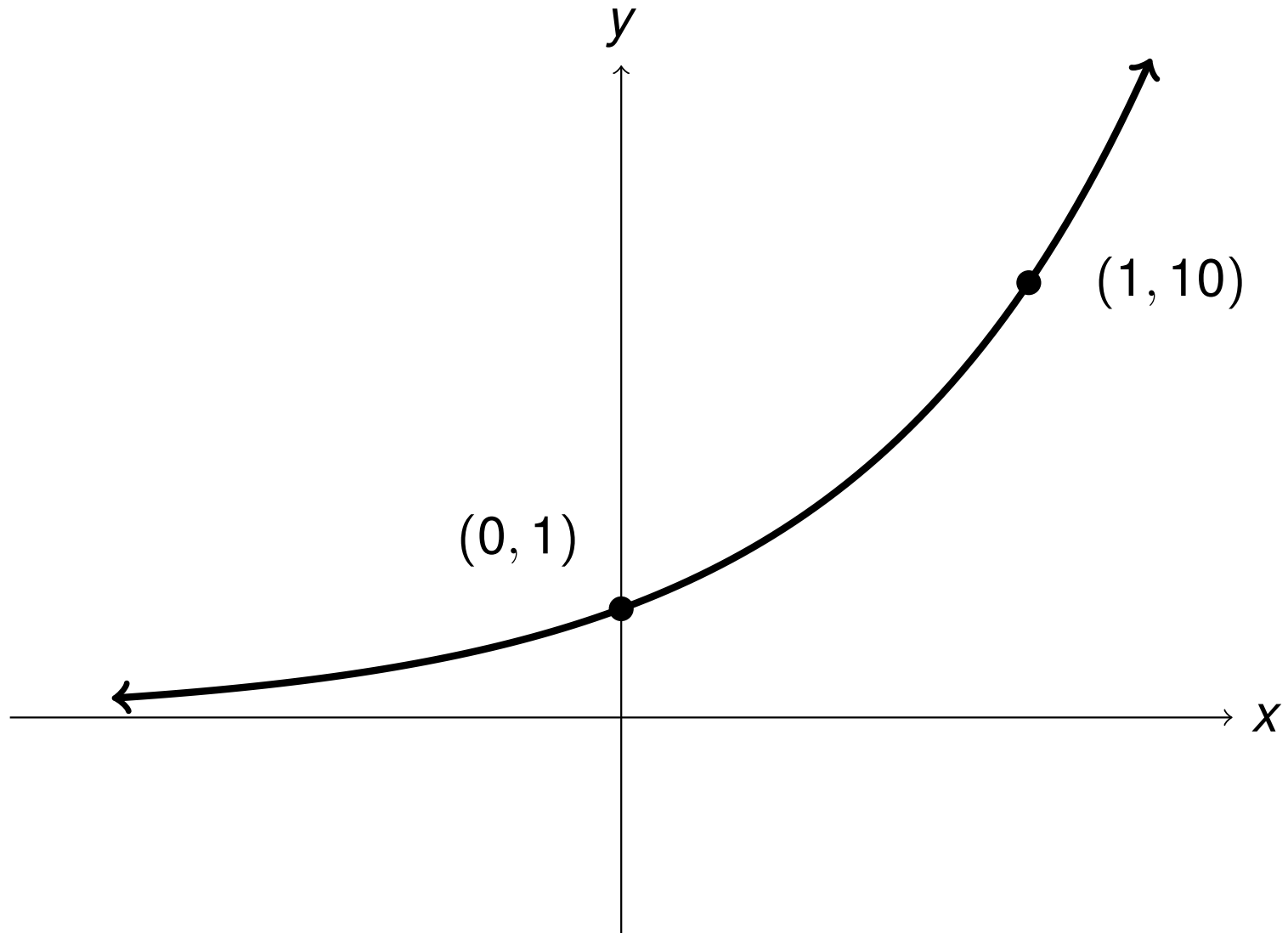- Function Notation

- Graphs of Functions

- Inverse Functions

Objectives
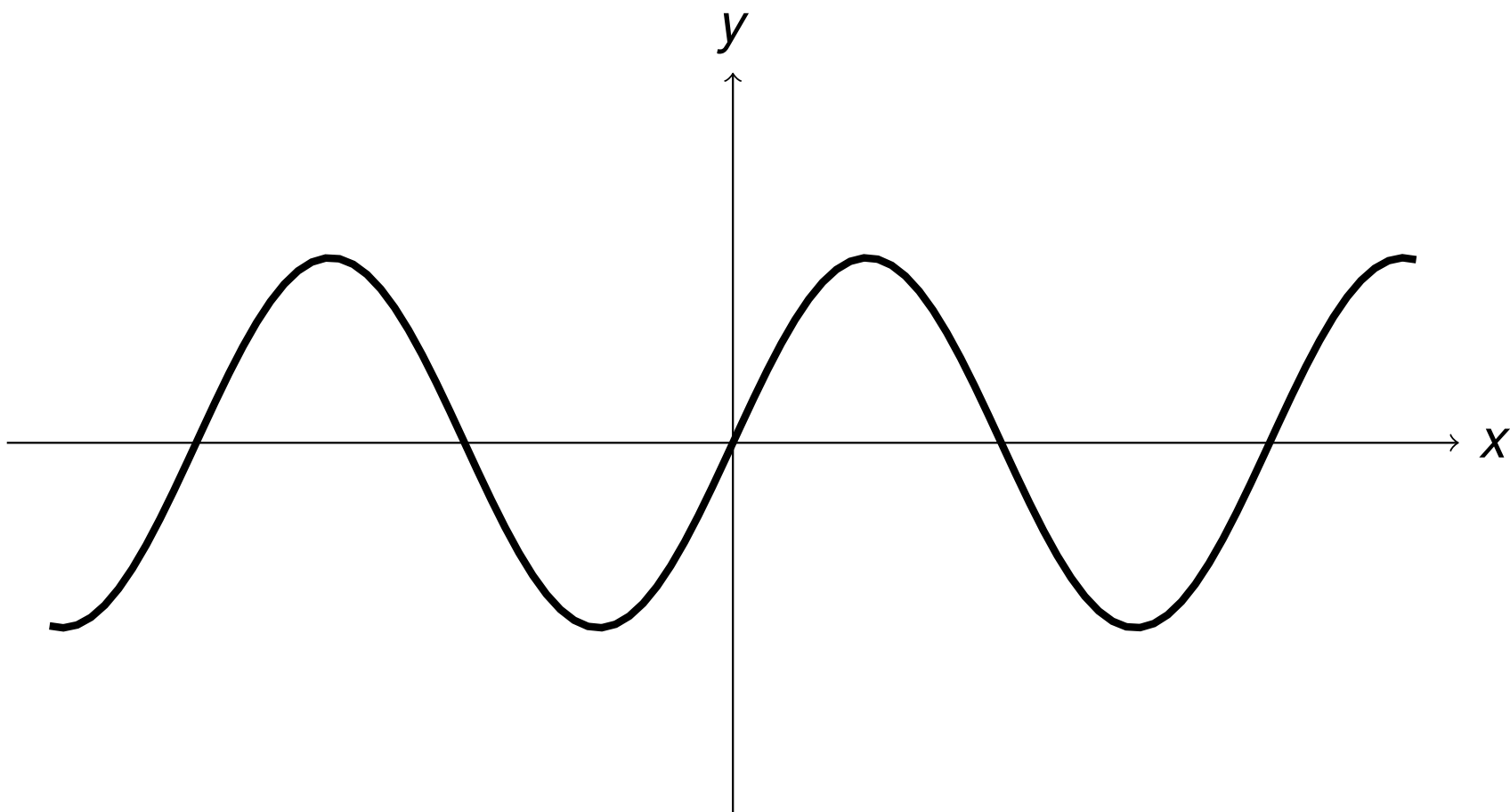
- Define one-to-one functions

Lines

$y = 10^x$

$y = \sin x$

A function $y = f(x)$ is **one-to-one** if, for each possible output y, there is exactly one input x such that $y = f(x)$.

Horizontal Line Test: If any horizontal line crosses the graph of $y = f(x)$ at most once, then $f(x)$ is a **one-to-one function**.

If $y = f(x)$ is a one-to-one function, then the inverse function f^{-1} is defined so that $f^{-1}(y) = x$.