

Math 115 Fall 2018
Worksheet 4 – Section 1.4

Warm-up questions

The domain of a function is _____.

The range of a function is _____.

The inverse f^{-1} of the function $f(x) = e^x$ is the function _____.

Logarithms and exponentials

Problem 1. For each of the following functions, sketch its graph and find the domain, range and asymptotes.

(a) $f(x) = 2^{-x+1}$

(b) $f(x) = 3 + 2^x$

(c) $f(x) = \log_3(x - 1)$

(d) $f(x) = 2 - \log_2(x)$

Problem 2. Solve each one of the following equations, showing every step of your work.

(a) $3^{2x-7} = 27$

(b) $5^{4-x} = \frac{1}{125}$

(c) $3^{2x} - 3^x - 6 = 0$

(d) $\log_2(5 - x) + \log_2(5 + x) = 4$

Problem 3. Find the inverse of the function $f(x) = 2^{3^x}$ and state its domain and range.