Math 203: HW 2

Due on Friday, May 31

Summer ’13

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Problem 1

Give the domain and range of the following functions:

\[ f(x) = x^2 \]
\[ g(x) = \sqrt{x} \]
\[ h(x) = \frac{3}{x^2 + x - 2} \]
\[ j(x) = \frac{1}{\sqrt{x^2 + x - 2}} \]

Problem 2

Find the two intersection points of \( f(x) = (x - 1)^2 + 1 \) and \( g(x) = -x^2 + 5 \) and give the equation of the line that hits both points.

Problem 3

Simplify the following expressions:

a) \[ \frac{(x - 1)^5}{x^2 - 1} \]

b) \[ 8(8^x)^y \]

c) \[ \frac{(x + y)^3}{x(x + y)} \]

Problem 4

Graph the following function:

\[ f(x) = \begin{cases} 
  x^2 & : x \leq 1 \\
  1 & : x > 1 
\end{cases} \]

Give the domain and range of \( f \). Compute \( f(-1) \) and \( f(3) \).