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Test 1 – Fall 2015

Homework ~ Tutorials ~ Past Tests

1. [12 points]

Let $f(x) = \frac{1}{\sqrt{9-x}}$

A) Find the domain and range of $f(x)$

B) Find the inverse function of $f(x)$

2. [8 points]

Solve each equation for x.
Hint: You need to express the solutions in terms of exponential and natural logarithm functions.

A) $e^{7-4x} = 6$

B) $ln(x^2 - 1) = 3$

3. [12 points]

Evaluate the following limits:

$A)$ $\lim\limits_{x \to -1} \dfrac{\sqrt{x + 10} - 3}{x + 1}$

$B)$ $\lim\limits_{x \to 0^+} \dfrac{1}{2^x - 1}$

4. [8 points]

Let c be a real number. Define the function

$$f(x) = \begin{cases} x - 1 & if \ x < 2 \\ x^2 + c & if \ x \geq 2 \end{cases}$$

Find the value of c such that $f(x)$ is a continuos function.