

Calculus I - Math 151 Homework #1 - due Tuesday 9/29

• **Problems from the book:** (Feel free to work on more problems in these sections for extra practice.)

– §1.1: 1, 5, 7, 23, 27-30, 33, 35, 41, 57

– §1.3: 3, 33, 38, 50a-c

Note: The problems from Ch. 1 should
be review.

– §1.5: 15, 16

– §1.6: 33, 37, 47, 51, 59-61, 63

– §2.1: 1ab, 3, 5

– §2.2: 1, 2, 5, 9, 13, 14, 20, 33, 25, 26 (For #25 & 26, try to reason out the limits w/o using graphs or tables.)

• **Additional Problems:**

1. Consider the function $f(x) = \frac{1}{1-2^{1/x}}$ for $x \neq 0$.

(a) Find $\lim_{x \rightarrow 0^-} f(x)$. Justify your answer by considering the definition of the function. (Discuss what happens to the numerator and denominator of $f(x)$ as x approaches 0 from the left.)

(b) Find $\lim_{x \rightarrow 0^+} f(x)$. Justify your answer by considering the definition of the function.

(c) Does $\lim_{x \rightarrow 0} f(x)$ exist?