

**MATH 1550 - Calculus I - Section 1**  
**Summer 2013**

**HOMEWORK 1**

Due at the beginning of class, Friday, June 14th

Read the questions and instructions carefully. The number of points available for each problem is given in parentheses. You must *show your work* to get full credit.

- (1) Sketch the graph of a function  $f(x)$  satisfying the following:

$$\lim_{x \rightarrow -1} f(x) = 2, \lim_{x \rightarrow 0^-} f(x) = \infty, \lim_{x \rightarrow 0^+} f(x) = 1, \lim_{x \rightarrow 4} f(x) = 2, f(4) = 0.$$

- (2) Determine the value(s) of  $x$  for which  $f(x) = \frac{x+2}{x^2-4}$  has an infinite limit. At each value, determine whether the left- and right- hand limits are positively or negatively infinite.

(3) Find  $\lim_{x \rightarrow 4} \frac{3x+1}{x^2-16}$

(4) Find  $\lim_{x \rightarrow -1} \frac{2x^2 - x - 3}{x + 1}$

(5) Find  $\lim_{x \rightarrow 5} \frac{\sqrt{x+11} - 4}{x - 5}$