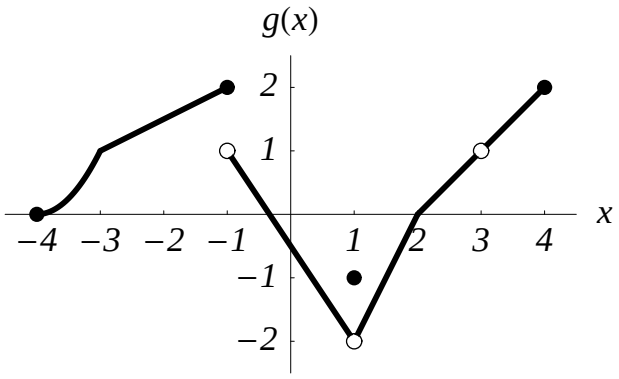
Math 1a. §2.2. The Limit of a Function. Worksheet

Fall 2005

1. The graph of g is given below.



In each case, find the limit. If the limit does not exist, say why.

(a) $\lim_{x \to -4^+} g(x)$

(b) $\lim_{x \to -3} g(x)$

(c) $\lim_{x \to -2} g(x)$

(d) $\lim_{x \to 1^+} g(x)$

(e) $\lim_{x \to -1} g(x)$

(f) $\lim_{x \to 0^-} g(x)$

(g) $\lim_{x \to 1} g(x)$

(h) $\lim_{x \to 2} g(x)$

(i) $\lim_{x \to 3} g(x)$

(j) $\lim_{x \to 4^-} g(x)$

2. Estimate

$$\lim_{x\to\infty}\left(1-\frac{1}{x}\right)^{-x}$$

by creating a table of values.

x	$(1-1/x)^{-x}$
1	
10	
100	
1000	
10000	
100000	
1000000	

3. Evaluate each of the following limits.

(a) $\lim_{x\to 1}\dfrac{x^2-3x-4}{x+1}$

(b) $\lim_{x\to -1}\dfrac{x^2-3x-4}{x+1}$

(c) $\lim_{h\to 0}\dfrac{\sqrt{9+h}-\sqrt{9}}{h}$

(d) $\lim_{h\to 0}\dfrac{\sqrt{x+h}-\sqrt{x}}{h}$