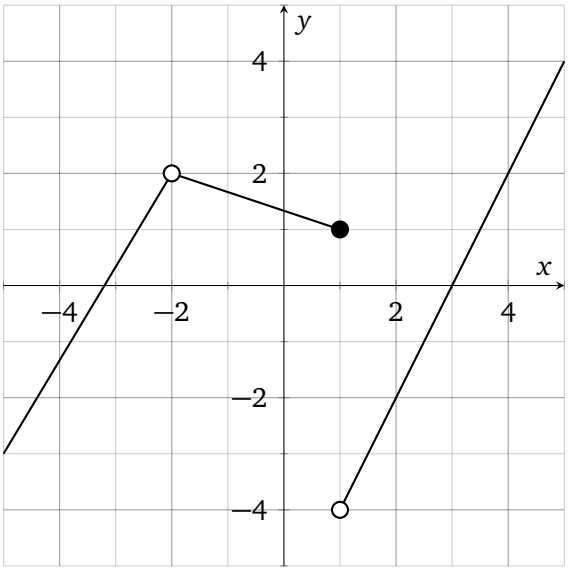
LIMITS

TEXT: 1.1, 1.2

LAST NAME	FIRST NAME	DATE

1 (6 points). Use the graph of a function $g(x)$ to find the following limits, if they exist:



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

(b) $\lim_{x\to -2^+} g(x)$

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

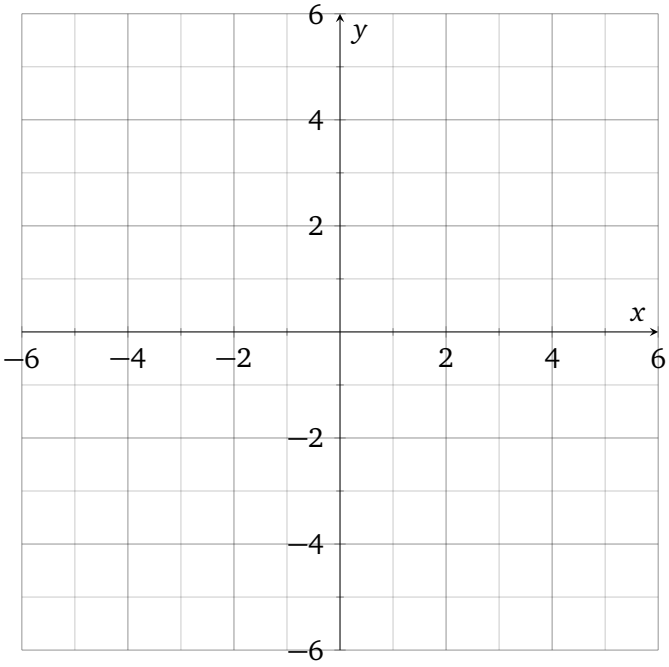
(d) $\lim_{x\to 1^-} g(x)$

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

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

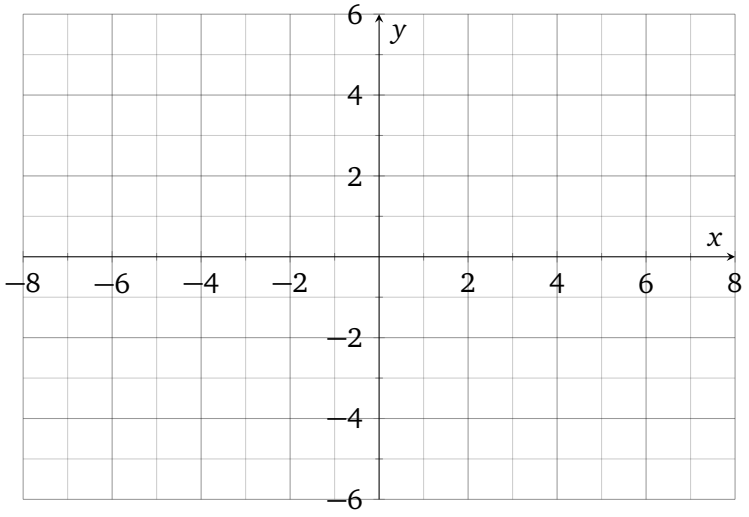
2 (4 points). Sketch a graph of a function $h(x)$ with the following properties:

- $\lim_{x\to 3^-} h(x) = 2$
- $\lim_{x\to 3^+} h(x) = \infty$
- $h(3) = 4$
- $\lim_{x\to 0} h(x) = -\infty$
- $\lim_{x\to -4} h(x) = 3$
- $h(-4)$ undefined



3 (6 points)**.** Use transformations to sketch the graph of a function

$$y(x) = -\frac{1}{x+3}$$



(a) Use the interval notation to describe the set of points a for which $\lim_{x \to a} y(x)$ exists.

(b) For a point n, where $\lim_{x \to n} y(x)$ does **not** exist, find $\lim_{x \to n^+} y(x)$ and $\lim_{x \to n^-} y(x)$.

4 (3 points)**.** Formally describe the limit from the left, the limit from the right, and the two-sided limit of the shown function $p(x)$ at the point $x = 1$.