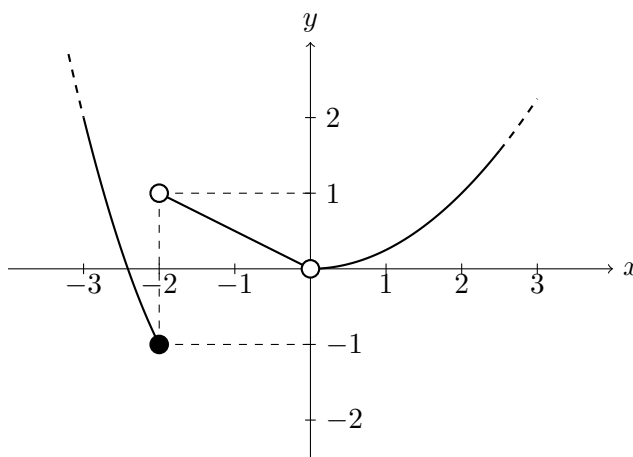**Name and surname:**

U number:

Calculus I - MAC 2311 - Section 001
Quiz 1
01/17/2018

Instructions: The total number of points of this quiz is 10. You will get an extra point if you solve correctly the last exercise.

1) [5 points] The graph of a function f is given.

State the value of each quantity. If a quantity does not exist or is undefined **explain why**.

a) $\lim\limits_{x \to -2^-} f(x) =$

b) $\lim\limits_{x \to -2^+} f(x) =$

c) $\lim\limits_{x \to -2} f(x) =$

d) $f(-2) =$

e) $\lim\limits_{x \to 0^-} f(x) =$
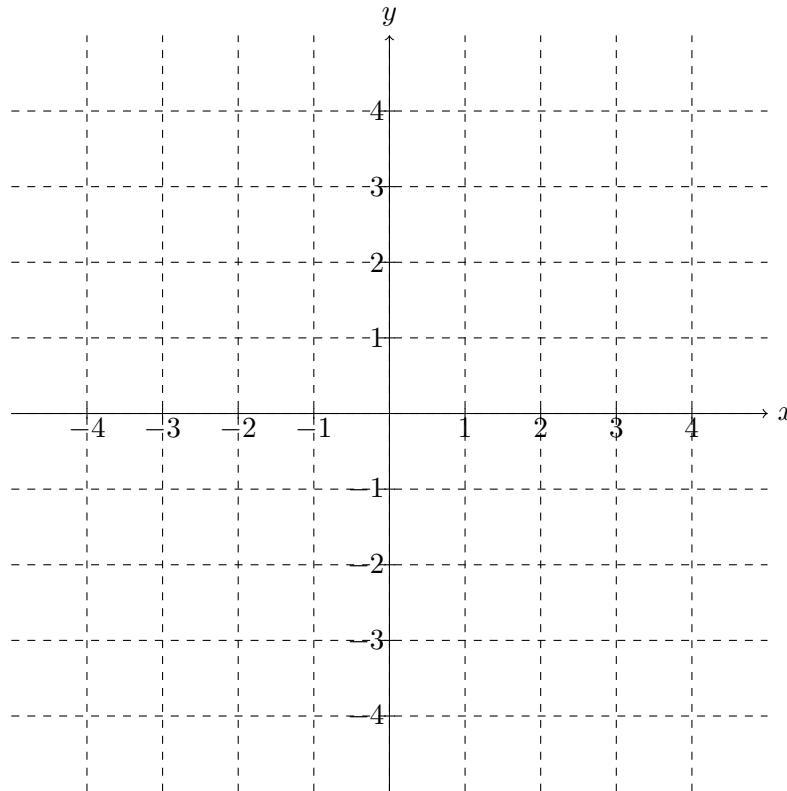
f) $\lim\limits_{x \to 0^+} f(x) =$

g) $\lim\limits_{x \to 0} f(x) =$

h) $f(0) =$

2) [5 points] Sketch the graph of **a** function f that satisfies **all of the given conditions**:

$$\lim_{x \to -3^-} f(x) = 0, \qquad f(-3) = 4, \qquad \lim_{x \to -3^+} f(x) = -2,$$
$$\lim_{x \to 1} f(x) = -1, \qquad f(1) = 0.$$

Make sure that your graph is the graph of a function, i.e. it passes the vertical line test.

3) [Bonus] A student says:

"**If** f is a function such that $f(1) = 2$ **then** $\lim_{x \to 1} f(x) = 2$."

Do you agree or disagree? If you agree explain why, otherwise show (algebraically or visually with a graph) a **counterexample**, i.e. an example of function such that $f(1) = 2$ and $\lim_{x \to 1} f(x) \neq 2$.