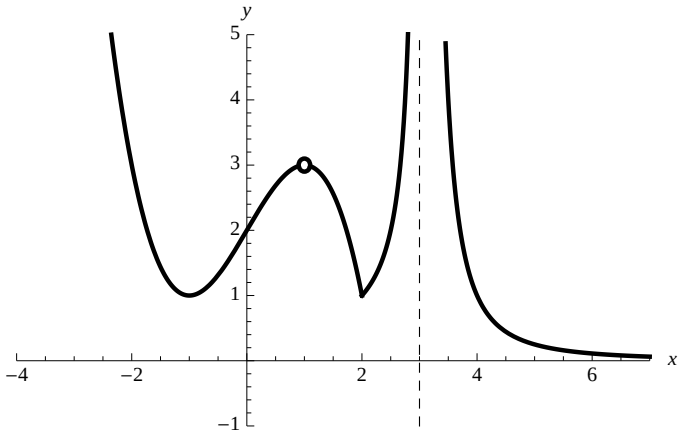
1. [15 points] The following figure shows the graph of $y = f(x)$ for some function f. The dotted line signifies a vertical asymptote.



a. [12 points] Using the graph, give the values of each of the following quantities if they exist. Choose your answer in each part from the numbers $0, 1, 2, 3$ or the words "Does not exist." Answers may be used more than once–or not at all.

i) $f(1) =$ _____

ii) $f(2) =$ _____

iii) $f(3) =$ _____

iv) $f'(-1) =$ _____

v) $f'(1) =$ _____

vi) $f'(2) =$ _____

vii) $\lim_{x \to +\infty} f(x) =$ _____

viii) $\lim_{x \to 3} f(x) =$ _____

ix) $\lim_{x \to 2} f(x) =$ _____

x) $\lim_{x \to 1} f(x) =$ _____

xi) $\lim_{x \to -1} f(x) =$ _____

xii) $\lim_{x \to -\infty} f(x) =$ _____

b. [3 points] Still looking at the graph, is f continuous at the following x values? (Yes or No)

i) $x = 1$ _____ ii) $x = 2$ _____ iii) $x = 3$ _____