AB Calculus Infinite Limits Practice   Name: _____
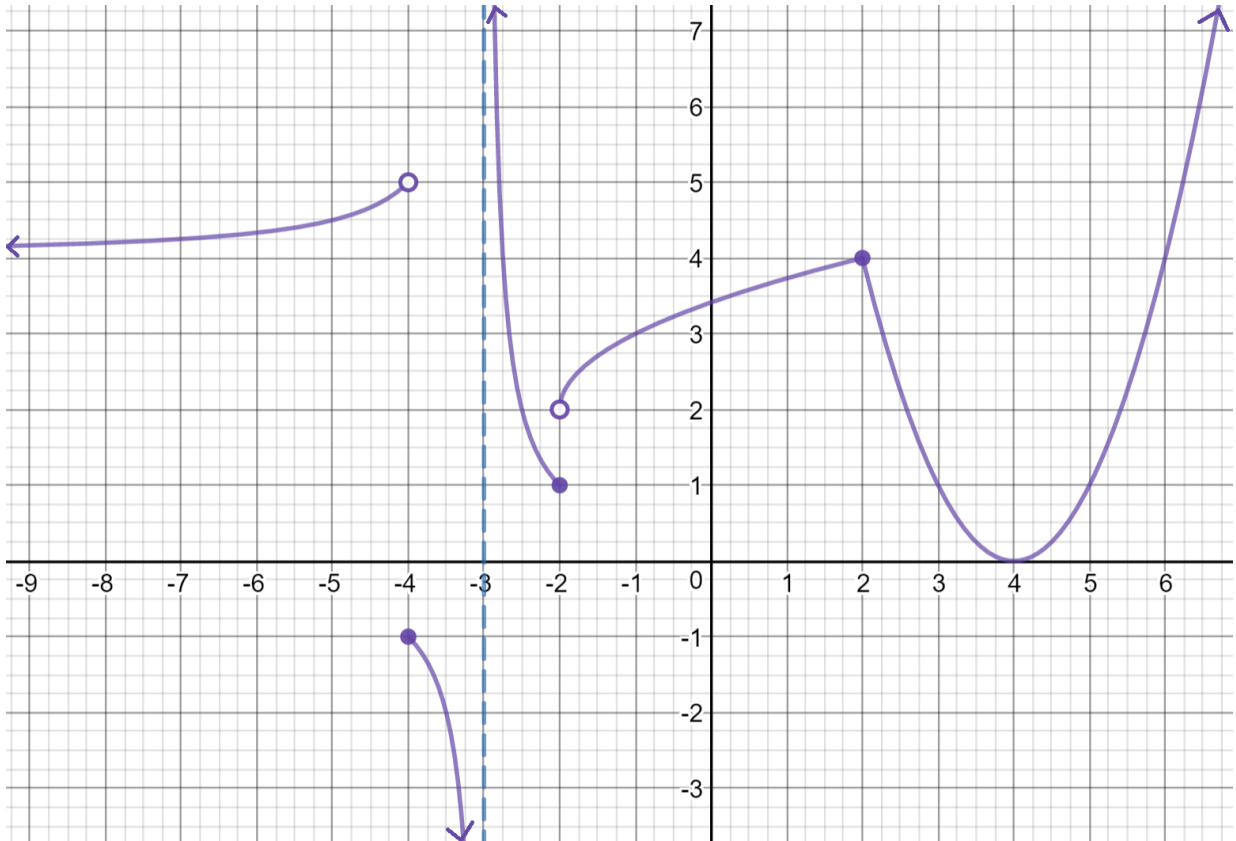
1. Given the graph of f(x) below, find the following limits:

a) $\lim\limits_{x \to -4^-} f(x) =$

b) $\lim\limits_{x \to -\infty} f(x) =$

c) $\lim\limits_{x \to -4^+} f(x) =$

d) $\lim\limits_{x \to 4} f(x) =$

e) $\lim\limits_{x \to -4} f(x) =$

f) $\lim\limits_{x \to 3^-} f(x) =$

g) $f(-4) =$

h) $f(3) =$

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

j) $\lim\limits_{x \to \infty} f(x) =$

k) $\lim\limits_{x \to -3^-} f(x) =$

l) $\lim\limits_{x \to -3^+} f(x) =$

m) $\lim\limits_{x \to -3} f(x) =$

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

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

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

q) $f(-3) =$

r) $f(-2) =$

s) $\lim\limits_{x \to -1} f(x) =$

t) $\lim\limits_{x \to 5} f(x) =$

2. Find the following limits algebraically.

a) $$\lim_{x \to -1^-} \frac{(x-1)(x-2)}{x+1}$$

b) $$\lim_{t \to 6} \frac{t-6}{t^2-36}$$

c) $$\lim_{x \to 10} \frac{\frac{1}{x-6} - \frac{2}{x-2}}{x-10}$$

d) $$\lim_{x \to -3} \frac{4x^2 + 17x + 15}{x+3}$$

e) $$\lim_{x \to \infty} \frac{\sqrt{x}}{x}$$

f) $$\lim_{x \to -1} -\frac{5}{x^2 + 2x + 1}$$

g) $$\lim_{x \to \infty} \frac{4 + 3x - 5x^3}{x^2 + 1}$$

h) $$\lim_{x \to 0} \frac{x}{\sqrt{x+1} - 1}$$

i) $$\lim_{x \to -\infty} \frac{5x^2 + 2x - 3}{6x^2 + 4x - 2}$$

j) $$\lim_{x \to \infty} \frac{2x + 3^{-x}}{3x + 3^{-x}}$$

k) $$\lim_{x \to \infty} \frac{\sqrt{3x^4 + x}}{x^2 - 8}$$

l) $$\lim_{x \to 0} \frac{\sin 3x}{3x^2 + 9x}$$

3.
$$f(x) = \begin{cases} \dfrac{1}{x+1}, & x \geq 0 \\ 2^x + 3, & x < 0 \end{cases}$$

a) $\lim_{x \to 0} f(x)$

b) $\lim_{x \to -1} f(x)$

c) $\lim_{x \to \infty} f(x)$

d) $\lim_{x \to -\infty} f(x)$

4. Use the sandwich theorem to find $\lim_{x \to 4} f(x)$ if $-x + 9 \leq f(x) \leq \frac{4x-11}{x-3}$