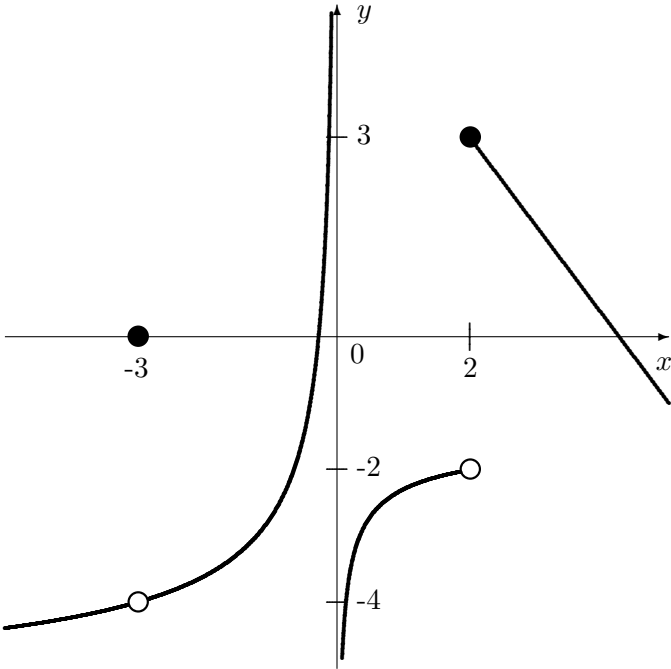


Name	MUN Number
------	------------

[12] 1. Use the graph of $y = f(x)$ below to determine each of the following. Label the limits as ∞ or $-\infty$ where appropriate. If the limit does not exist or the value of the function is undefined, indicate this.



- | | |
|--|--|
| (a) $f(-3) =$ | (b) $\lim_{x \rightarrow -3^-} f(x) =$ |
| (c) $\lim_{x \rightarrow -3^+} f(x) =$ | (d) $\lim_{x \rightarrow -3} f(x) =$ |
| (e) $f(2) =$ | (f) $\lim_{x \rightarrow 2^-} f(x) =$ |
| (g) $\lim_{x \rightarrow 2^+} f(x) =$ | (h) $\lim_{x \rightarrow 2} f(x) =$ |
| (i) $f(0) =$ | (j) $\lim_{x \rightarrow 0^-} f(x) =$ |
| (k) $\lim_{x \rightarrow 0^+} f(x) =$ | (l) $\lim_{x \rightarrow 0} f(x) =$ |

[16] 2. Evaluate each of the following limits. If a limit does not exist, explain why.

(a) $\lim_{x \rightarrow -1} \frac{3 - \sqrt{5 - 4x}}{1 - x^2}$

(b) $\lim_{x \rightarrow 4} \frac{x(x + 4)^{-1} - 2x^{-1}}{x - 4}$

(c) $\lim_{x \rightarrow 0} \frac{5x - |x|}{|x| + 4x}$

[12] 3. Consider the function $f(x) = \frac{2x^3 - 4x^2 + 5x}{8x(9 - x^2)}$.

(a) Identify any horizontal asymptotes to the graph of $f(x)$.

(b) Identify any discontinuities of $f(x)$. Classify them as removable or non-removable, and provide the equation of any vertical asymptotes.