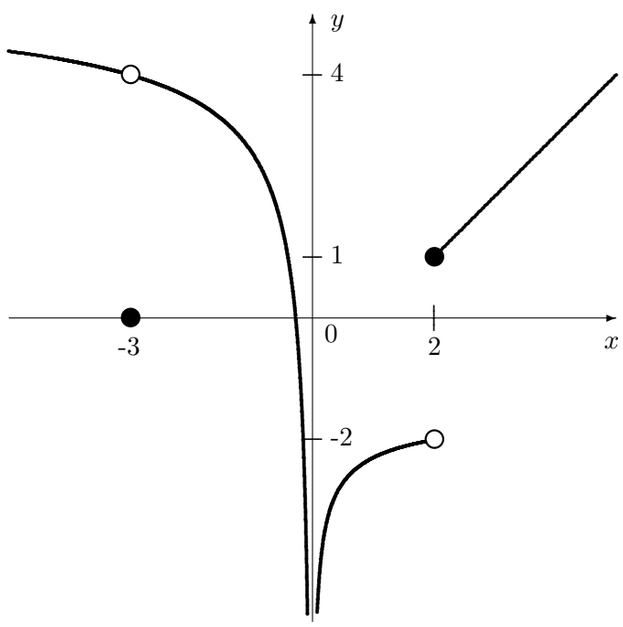
MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

TEST 1 **MATHEMATICS 1000-001** OCTOBER 3RD, 2023

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

(c) $\lim_{x \to -3^+} f(x) =$

(d) $\lim_{x \to -3} f(x) =$

(e) $f(2) =$

(f) $\lim_{x \to 2^-} f(x) =$

(g) $\lim_{x \to 2^+} f(x) =$

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

(i) $f(0) =$

(j) $\lim_{x \to 0^-} f(x) =$

(k) $\lim_{x \to 0^+} f(x) =$

(ℓ) $\lim_{x \to 0} f(x) =$

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

(a) $\lim_{x \to 4} \dfrac{2x^2 - 7x - 4}{3x^2 - 12x}$

(b) $\lim_{x \to 2} \dfrac{1 - \sqrt{7 - 3x}}{x^2 - 4}$

(c) $\lim_{x \to -3} \dfrac{(x+4)^{-1} + 3x^{-1}}{x + 3}$

(d) $\lim_{x \to \frac{\pi}{2}} \dfrac{6 - \cos(2x)}{2\cos(x) + 1}$

(e) $\lim_{x \to 0} \dfrac{\sin(x)}{\sin(3x)}$

(f) $\lim_{x \to 0} \dfrac{6x}{|x| + 2x}$