

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

ASSIGNMENT 1

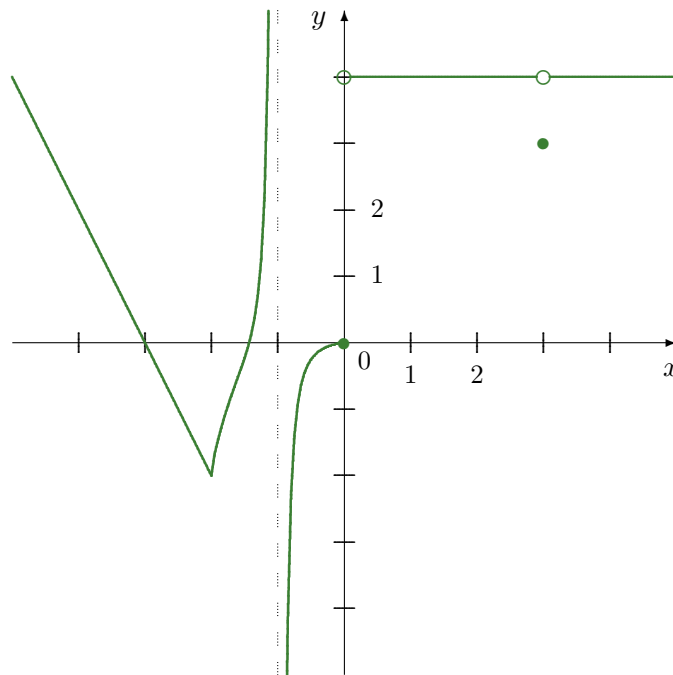
MATHEMATICS 1000

FALL 2023

Due: Monday, September 18th, 2019 at 4:00pm. SHOW ALL WORK.

Note: You should complete Worksheet 1.2 before you work on this assignment. You should also complete the “Getting Started for Math 1000” WebAssign practice problem set if you haven’t already done so. Please review the assignment submission guidelines on page 2.

1. Use the graph of $y = f(x)$ below to determine each of the following (no workings are necessary). If the value of the function is undefined or the limit does not exist, indicate this (but label these limits as ∞ or $-\infty$ where appropriate).



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|-------------|--------------------------------------|--------------------------------------|------------------------------------|
| (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) $f(0)$ | (f) $\lim_{x \rightarrow 0^-} f(x)$ | (g) $\lim_{x \rightarrow 0^+} f(x)$ | (h) $\lim_{x \rightarrow 0} f(x)$ |
| (i) $f(-1)$ | (j) $\lim_{x \rightarrow -1^-} f(x)$ | (k) $\lim_{x \rightarrow -1^+} f(x)$ | (l) $\lim_{x \rightarrow -1} f(x)$ |
| (m) $f(-2)$ | (n) $\lim_{x \rightarrow -2^-} f(x)$ | (o) $\lim_{x \rightarrow -2^+} f(x)$ | (p) $\lim_{x \rightarrow -2} f(x)$ |

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2. Consider the function

$$f(x) = \frac{x^3 + 2x^2 - 16x - 32}{x^3 - 12x - 16}.$$

With the aid of a calculator, investigate each of the following limits by constructing a table of values to find the lefthand and righthand limits. Use the one-sided limits to determine the (two-sided) limit, if it exists. Assign ∞ or $-\infty$ where appropriate.

(a) $\lim_{x \rightarrow 4} f(x)$

(b) $\lim_{x \rightarrow -2} f(x)$

Assignment submission guidelines

- Assignments should be submitted on loose leaf, letter-sized (8.5" \times 11" or A4) paper.
- Assignments should be stapled in the upper left corner; paperclips should not be used, and assignments should not be placed in a folder or any other container.
- Please write on only one side of each page, with the problems completed in sequential order.
- Please include a cover page with your name and student number, the name of the course and the assignment number.
- You may submit assignments in class, or via the marking box listed on your Day One Handout (located on the top floor of the Mathematics Building), prior to the indicated deadline.
- Note: assignments which do not adhere to these guidelines may not be accepted for grading.