

# MEMORIAL UNIVERSITY OF NEWFOUNDLAND

## DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 1.2

Math 1000 Worksheet

FALL 2022

**For practice only. Not to be submitted.**

1. Use the graph of  $y = f(x)$  given in Figure 1 to determine each of the following. If the value of the function is undefined or the limit does not exist, indicate this (but label these limits as  $\infty$  or  $-\infty$  where appropriate).

- |                                      |                                     |                                      |
|--------------------------------------|-------------------------------------|--------------------------------------|
| (a) $f(0)$                           | (b) $\lim_{x \rightarrow 0^-} f(x)$ | (c) $\lim_{x \rightarrow 0^+} f(x)$  |
| (d) $\lim_{x \rightarrow 0} f(x)$    | (e) $f(3)$                          | (f) $\lim_{x \rightarrow 3^-} f(x)$  |
| (g) $\lim_{x \rightarrow 3^+} f(x)$  | (h) $\lim_{x \rightarrow 3} f(x)$   | (i) $f(4)$                           |
| (j) $\lim_{x \rightarrow 4} f(x)$    | (k) $f(-2)$                         | (l) $\lim_{x \rightarrow -2^-} f(x)$ |
| (m) $\lim_{x \rightarrow -2^+} f(x)$ | (n) $\lim_{x \rightarrow -2} f(x)$  |                                      |

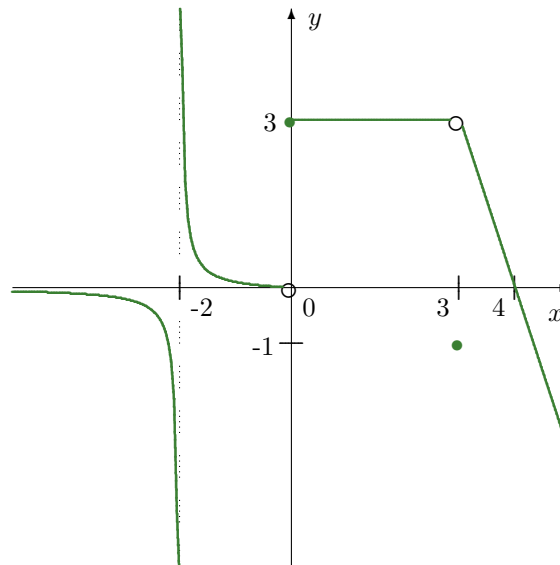


Figure 1: The graph of  $y = f(x)$  for Question 1.

2. Sketch the graph of the function

$$f(x) = \frac{7x - |9x|}{4x}$$

and use it to determine each of the following.

- (a)  $\lim_{x \rightarrow 0^-} f(x)$                       (b)  $\lim_{x \rightarrow 0^+} f(x)$                       (c)  $\lim_{x \rightarrow 0} f(x)$   
(d)  $\lim_{x \rightarrow 4} f(x)$                       (e)  $\lim_{x \rightarrow -\frac{6}{5}} f(x)$

3. Using a calculator, construct a table of values to deduce each limit.

- (a)  $\lim_{x \rightarrow 4} \frac{2x^2 - 7x - 4}{3x^2 - 14x + 8}$   
(b)  $\lim_{x \rightarrow 0} \frac{\tan^2(x)}{\cos(5x) - 1}$   
(c)  $\lim_{x \rightarrow -1} \frac{3x^2 - 9x - 12}{x^3 + 7x^2 + 15x + 9}$   
(d)  $\lim_{x \rightarrow -3} \frac{3x^2 - 9x - 12}{x^3 + 7x^2 + 15x + 9}$