MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 4.4 **Math 1000 Worksheet** FALL 2024

For practice only. Not to be submitted.

1. Find the maximum and minimum values of each function on the indicated closed interval.

   (a) $f(x) = x^3 - 9x$, on $-4 \leq x \leq 3$

   (b) $f(x) = \dfrac{x^2 + 3}{x + 1}$, on $0 \leq x \leq 4$

   (c) $f(x) = \sec(x)$, on $-\dfrac{\pi}{6} \leq x \leq \dfrac{\pi}{3}$

   (d) $f(x) = x - 2\cos(x)$, on $-\pi \leq x \leq \pi$ (approximate the maximum and minimum values to two decimal places)

2. Consider the function $f(x) = 2 + 6x^2 - 2x^3$.

   (a) Find the maximum value of $f(x)$ on the open interval $1 < x < 7$.

   (b) Find the minimum value of $f(x)$ on the open interval $-7 < x < 1$.

3. Find the minimum value of $f(x) = \dfrac{x^2 + 4}{8 - 3x}$ on the open interval $-2 < x < 2$.