# MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

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ASSIGNMENT 4 **MATHEMATICS 1090** FALL 2026

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**Due: Monday, October 26th, 2026 at 6:00pm.** See the Gradescope Handout for submission information.

> **Note:** You should complete the WeBWorK problem sets "Linear Inequalities", "Absolute Value Inequalities" and "Functions", as well as Worksheets 2.1, 2.2 and 2.3, before you work on this assignment.

1. Solve each of the following inequalities. Give the solution as an interval or as the union of intervals.

   (a) $3x - 7 < 2x + 3 < 5x$

   (b) $|4x + 5| \geq 3$

   (c) $|3 - 5x| < 12$

2. Identify the domain of each of the following functions.

   (a) $f(x) = \dfrac{x + 2}{3x^2 - 10x - 8}$

   (b) $f(x) = \dfrac{\sqrt{x + 1}}{x^2 - 4}$

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

   (a) Determine whether $f(x)$ is even, odd or neither.

   (b) Find the difference quotient for $f(x)$.