

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

ASSIGNMENT 1

MATHEMATICS 1090

FALL 2026

Due: Monday, September 28th, 2026 at 6:00pm. See the Gradescope Handout for submission information.

Note: You should complete the WeBWorK problem sets “Exponent Rules”, “Polynomial Expressions”, “Factoring 1” and “Factoring 2”, as well as Worksheets 1.1, 1.2 and 1.3, before you work on this assignment.

1. From the set of real numbers

$$\left\{-7, \frac{2}{9}, \pi^3, 3, -\frac{17}{13}, -0.\overline{23}, \sqrt{8}, -5.4, -\frac{12}{4}, 0.3\overline{5}, 159, \frac{3}{6}\right\}$$

indicate which elements are

- (a) natural numbers
 - (b) integers
 - (c) rational numbers
 - (d) irrational numbers
2. Use the laws of exponents to express $\frac{x^2y^{-4}}{(2x^{-2}y)^{-3}}$ in simplified form.
3. Completely expand and simplify the expression

$$4x(x-3) - (x-4)^2 + (3x-1)(x+5).$$

4. Completely factor each polynomial.

- (a) $64x^3 + 1$
- (b) $12x^2 + 21x + 9$
- (c) $x^4 - 6x^2 - 27$