

# MEMORIAL UNIVERSITY OF NEWFOUNDLAND

## DEPARTMENT OF MATHEMATICS AND STATISTICS

---

SECTION 1.5

Math 1000 Worksheet

FALL 2022

---

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

1. Find both limits at infinity for the function  $f(x) = \frac{x(x+1)(1-x)}{(2x+3)^2}$ .

2. Identify all horizontal asymptotes (if any) of the given rational function.

(a)  $f(x) = \frac{6x^3 - 6x^4}{2x^4 - x^2 + 1}$

(b)  $g(x) = \frac{6x^2 - 2x + 5}{7x^3 + x^{\frac{3}{2}}}$

(c)  $h(x) = \frac{(x+1)^3}{(4x^2+1)(2x-3)}$

3. Identify all horizontal asymptotes (if any) of the given quasirational function.

(a)  $f(x) = \frac{x + \sqrt{4x^2 + 2}}{x - 7}$

(b)  $f(x) = \frac{2x + 1}{5x - \sqrt{9x^2 - 4}}$

(c)  $f(x) = \frac{2x + 1}{5x - \sqrt{25x^2 - 4}}$