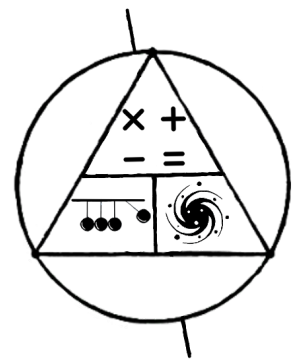


# Lesson Plan: U3L4



<b>Lesson Title:</b> Rational functions of the form - $f(x) = \frac{ax+b}{cx+d}$	<b>Lesson # 4</b>
<b>Unit # 3</b>	<b>Hours: 2</b>
<b>Teacher:</b> Roger Wilkinson	<b>Course:</b> MHF4U

<b>Overall Expectations:</b>	<b>Specific Expectations:</b>
<p><b>C2</b> identify and describe some key features of the graphs of rational functions, and represent rational functions graphically;</p> <p><b>C3</b> solve problems involving polynomial and simple rational equations graphically and algebraically;</p>	<p><b>2.2</b> determine, through investigation with and without technology, key features (i.e., vertical and horizontal asymptotes, domain and range, intercepts, positive/negative intervals, increasing/decreasing intervals) of the graphs of rational functions that have linear expressions in the numerator and denominator and make connections between the algebraic and graphical representations of these rational functions</p> <p><b>2.3</b> sketch the graph of a simple rational function using its key features, given the algebraic representation of the function</p> <p><b>3.5</b> determine, through investigation using technology (e.g., graphing calculator, computer algebra systems), the connection between the real roots of a rational equation and the x-intercepts of the graph of the corresponding rational function, and describe this connection</p>
<b>Learning goals:</b>	<b>Success Criteria:</b>
<ul style="list-style-type: none"> <li>Determine the key features of the graphs of rational functions that have linear expressions in the numerator and denominator.</li> </ul>	<ul style="list-style-type: none"> <li>For rational function with a linear expression in both the numerator and denominator I can state the:                             <ul style="list-style-type: none"> <li>– VA/HA</li> <li>– domain and range</li> <li>– intercepts</li> <li>– behaviour near the asymptotes</li> </ul> </li> <li>I can graph these types of rational functions using interval charts</li> </ul>

Activity	Time	Description
<b>Introduction</b>	30 - 60 min	<ul style="list-style-type: none"> <li>• Will review the HW from U3L3</li> <li>• Will address any questions students have about the U3L3 material</li> </ul>
<b>Self-Study Period</b>	45-60 min	<ul style="list-style-type: none"> <li>• Review of reciprocals of linear functions <ul style="list-style-type: none"> <li>– Vertical asymptotes</li> <li>– Horizontal asymptotes</li> </ul> </li> <li>• Graphing rational functions of the form: <math display="block">f(x) = \frac{ax+b}{cx+d}</math> <ul style="list-style-type: none"> <li>– Domain and range</li> <li>– asymptotes</li> <li>– interval charts</li> <li>– intercepts</li> </ul> </li> </ul>
<b>Post Lecture Question Period</b>	15 min	<ul style="list-style-type: none"> <li>• Time for students to ask questions either individually or as a class about any material in the lecture</li> </ul>

Homework
HW 3.4 Problem Set