

**Academic Mathematics 2200**  
**Unit 7: Absolute Value and Reciprocal Functions**

**Text: Pre-Calculus 11**

**Chapter 7**

By the end of this unit, it is expected that students will:

Outcome	Text Book
<p><b>1. Demonstrate an understanding of the absolute value of real numbers.</b></p> <ul style="list-style-type: none"> <li>● Determine the distance of two real numbers of the form <math>\pm a</math>, <math>a \in \mathfrak{R}</math>, from 0 on a number line, and relate this to the absolute value of <math>a</math> (<math> a </math>).</li> <li>● Determine the absolute value of a positive or negative real number.</li> <li>● Explain, using examples, how distance between two points on a number line can be expressed in terms of absolute value.</li> <li>● Determine the absolute value of a numerical expression.</li> <li>● Compare and order the absolute values of real numbers in a given set.</li> </ul>	<p>Section 7.1 Pages 358 – 367</p>
<p><b>2. Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems.</b></p> <ul style="list-style-type: none"> <li>● Create a table of values for <math>y =  f(x) </math>, given a table of values for <math>y = f(x)</math>.</li> <li>● Sketch the graph of <math>y =  f(x) </math>; state the intercepts, domain and range; and explain the strategy used.</li> <li>● Generalize a rule for writing absolute value functions in piecewise notations.</li> <li>● Solve an absolute value equation graphically, with or without technology.</li> <li>● Solve, algebraically, an equation with a single absolute value, and verify the solution.</li> <li>● Explain why the absolute value equation <math> f(x)  &lt; 0</math> has no solution.</li> <li>● Determine and correct errors in a solution to an absolute value equation.</li> <li>● Solve a problem that involves an absolute value function.</li> </ul>	<p>Section 7.2 Pages 368 – 379</p> <p>Section 7.3 Pages 380 – 391</p>
<p><b>3. Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions).</b></p> <ul style="list-style-type: none"> <li>● Compare the graph of <math>y = \frac{1}{f(x)}</math> to the graph of <math>y = f(x)</math>.</li> <li>● Identify, given a function <math>f(x)</math>, value of <math>x</math> for which <math>y = \frac{1}{f(x)}</math> will have vertical asymptotes; and describe their relationship to the non-permissible values of the related rational expression.</li> <li>● Graph, with or without technology, <math>y = \frac{1}{f(x)}</math>, given <math>y = f(x)</math> as a function or a graph, and explain the strategies used.</li> <li>● Graph, with or without technology, <math>y = f(x)</math> given <math>y = \frac{1}{f(x)}</math> as a function or a graph, and explain the strategies used.</li> </ul>	<p>Section 7.4 Pages 392 – 409</p>
<p>&lt; <b>Review</b></p>	<p>&lt;Pages 410 – 412</p>
<p>&lt; <b>Practice Test</b></p>	<p>&lt;Pages 413 – 414</p>