

Organization of the Guide

This guide is organized into two-page spreads. Specific Curriculum Outcomes (SCO's) and the Elaboration (containing some examples and/or teaching suggestions) appear on the left. Worthwhile Tasks for Instruction and/or Assessment (containing examples teachers may wish to use with classes and practice exercises for students) and Resources (containing suggested resources to match the SCO) appear on the right. A sample spread is shown below.

Outcome	Elaboration - Instructional Strategies/Suggestions	Worthwhile Tasks for Instruction and/or Assessment	Resources
<p><i>SCO: By the end of Mathematics 3103 students will be expected to:</i></p> <p>B9 Simplify expressions involving radicals</p>	<p>Some of this would have been done while working on outcomes B7 and B8.</p> <p>However, it is also intended that students would be able to multiply binomial radical expressions such as $\sqrt{x+1}$ and $\sqrt{x-1}$. They should be able to multiply conjugates of simple irrational numbers mentally [e.g. $\sqrt{5-2}$ and $\sqrt{5+2}$, $\sqrt{5-2}\sqrt{5+2}=5-2=3$], whereas conjugates of more complex irrational numbers may require pencil and paper [e.g. $\sqrt{25-3}$ and $\sqrt{25+3}$]. Students should be able to simplify an expression such as $\sqrt{3^2}$ mentally. These skills will then be carried over to rationalizing denominators when the denominator is either monomial or binomial in nature.</p> <p>It is also expected that students would be able to simplify more complex expressions involving radicals, making sure they properly apply the order of operations - e.g. simplify</p> $\sqrt{3^2} \dots \sqrt{2^2} \dots \sqrt{3^2} \dots \sqrt{2^2}$	<p><i>Mental Math</i></p> <p>B9. 1</p> <p>s) Simplify: $\sqrt{6-4} \sqrt{6+4}$</p> <p>b) Rationalize the denominator: $\frac{1}{\sqrt{x}}$</p> <p>c) Simplify: $\frac{1}{1-\sqrt{x}} \frac{1}{1+\sqrt{x}}$</p> <p><i>Paper and Pencil</i></p> <p>B9. 2</p> <p>a) Multiply: $\sqrt{5^3+3} \sqrt{5^3+2} \sqrt{5}$</p> <p>b) Multiply: $\sqrt{x+h-x} \sqrt{x+h+x}$</p> <p>c) Rationalize the denominator of each of the following:</p> <p>i) $\frac{\sqrt{z}}{2+\sqrt{z}}$ ii) $\frac{\sqrt{5}}{\sqrt{5}-2\sqrt{2}}$</p> <p>iii) $\frac{1}{1-\sqrt{x}}$</p>	<p><i>Mathematics 10 (Revised Edition)</i> p. 37-45</p> <p><i>Mathematics 10: Principles & Process</i> p. 117-129</p> <p><i>Mathematics 11 (National Edition)</i>, p. 28 - 32</p> <p>http://www.mathmax.com/introalg/chapter/bk3c9ep.html</p>

