

## **Math 20-1 Long Range Plans**

### Units:

1. Sequences and Series
2. Trigonometry
3. Quadratic Functions
4. Quadratic Equations
5. Radical Expressions and Equations
6. Rational Expressions and Equations
7. Absolute Value and Reciprocal Functions
8. Systems of Equations
9. Linear and Quadratic Inequalities

### Evaluation:

Homework, projects and assignments 10%  
Unit Tests 50%  
Final Examination 40%

Any Unit Test may be rewritten for a higher mark.

- If the retest mark is higher, that mark will be used.
- If it's lower, the marks are averaged.

Homework or assignments may not be redone. However, a cumulative assignment can be completed to replace those marks, at the discretion of the teacher.

## Curriculum Correlations

### Chapter 1 Sequences and Series

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Relations and Functions</b>		
<b>General Outcome</b> <i>Develop algebraic and graphical reasoning through the study of relations.</i>		
<b>Specific Outcomes</b>		
9. Analyze arithmetic sequences and series to solve problems. [CN, PS, R, T]	1.1–1.2 Unit 1 Project	pp. 6–31, 66–67, 69–70, 133–134, 136 pp. 3, 71, 132
10. Analyze geometric sequences and series to solve problems. [PS, R, T]	1.3–1.5 Unit 1 Project	pp. 32–65, 67–70, 133–134, 136–137 pp. 3, 71, 132

### Chapter 2 Trigonometry

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Trigonometry</b>		
<b>General Outcome</b> <i>Develop trigonometric reasoning.</i>		
<b>Specific Outcomes</b>		
1. Demonstrate an understanding of angles in standard position $[0^\circ$ to $360^\circ]$ . [R, V]	2.1 Unit 1 Project	pp. 74–87, 126, 129–130, 134, 136–137 pp. 3, 131–132
2. Solve problems, using the three primary trigonometric ratios for angles from $0^\circ$ to $360^\circ$ in standard position. [C, ME, PS, R, T, V]	2.1–2.2 Unit 1 Project	pp. 74–99, 126–127, 129, 134–136 pp. 3, 131–132
3. Solve problems, using the cosine law and sine law, including the ambiguous case. [C, CN, PS, R, T]	2.3–2.4 Unit 1 Project	pp. 100–125, 127–130, 135, 137 pp. 3, 131–132

### Chapter 3 Quadratic Functions

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Relations and Functions</b>		
<b>General Outcome</b> <i>Develop algebraic and graphical reasoning through the study of relations.</i>		
<b>Specific Outcomes</b>		
3. Analyze quadratic functions of the form $y = a(x - p)^2 + q$ and determine the: <ul style="list-style-type: none"> <li>• vertex</li> <li>• domain and range</li> <li>• direction of opening</li> <li>• axis of symmetry</li> <li>• <math>x</math>- and <math>y</math>-intercepts.</li> </ul> [CN, R, T, V]	3.1 Unit 2 Project	pp. 142–162, 198, 199, 201–203 pp. 139, 263
4. Analyze quadratic functions of the form $y = ax^2 + bx + c$ to identify characteristics of the corresponding graph, including: <ul style="list-style-type: none"> <li>• vertex</li> <li>• domain and range</li> <li>• direction of opening</li> <li>• axis of symmetry</li> <li>• <math>x</math>- and <math>y</math>-intercepts</li> </ul> and to solve problems. [CN, PS, R, T, V]	3.2, 3.3 Unit 2 Project	pp. 163–197, 199–203 pp. 139, 263

## Chapter 4 Quadratic Equations

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Relations and Functions</b>		
<b>General Outcome</b> <i>Develop algebraic and graphical reasoning through the study of relations.</i>		
<b>Specific Outcomes</b>		
1. Factor polynomial expressions of the form: • $ax^2 + bx + c$ , $a \neq 0$ • $a^2x^2 - b^2y^2$ , $a \neq 0$ , $b \neq 0$ • $a(f(x))^2 + b(f(x)) + c$ , $a \neq 0$ • $a^2(f(x))^2 - b^2(g(y))^2$ , $a \neq 0$ , $b \neq 0$ where $a$ , $b$ and $c$ are rational numbers. [CN, ME, R]	4.2, 4.4  Unit 2 Project	pp. 218–233, 244–262, 264–265, 267 pp. 139, 263
4. Analyze quadratic functions of the form $y = ax^2 + bx + c$ to identify characteristics of the corresponding graph, including: • vertex • domain and range • direction of opening • axis of symmetry • $x$ - and $y$ -intercepts and to solve problems. [CN, PS, R, T, V]	4.1, 4.3, 4.4  Unit 2 Project	pp. 206–217, 234–262, 265–267 pp. 139, 263
5. Solve problems that involve quadratic equations. [C, CN, PS, R, T, V]	4.1–4.4 Unit 2 Project	pp. 206–262, 264–267 pp. 139, 263

## Chapter 5 Radical Expressions and Equations

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Algebra and Number</b>		
<b>General Outcome</b> <i>Develop algebraic reasoning and number sense.</i>		
<b>Specific Outcomes</b>		
2. Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands. [CN, ME, PS, R, T]	5.1–5.2  Unit 3 Project	pp. 272–293, 304–307, 416, 418–419 pp. 269, 415
3. Solve problems that involve radical equations (limited to square roots). [C, PS, R]	5.3  Unit 3 Project	pp. 294–303, 305–307, 416, 418–419 pp. 269, 415

## Chapter 6 Rational Expressions and Equations

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Algebra and Number</b>		
<b>General Outcome</b> <i>Develop algebraic reasoning and number sense.</i>		
<b>Specific Outcomes</b>		
4. Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials). [C, ME, R]	6.1  Unit 3 Project	pp. 310–321, 352, 355, 416, 418–419 pp. 269, 415
5. Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials). [CN, ME, R]	6.2–6.3  Unit 3 Project	pp. 322–340, 352–355, 416, 418–419 pp. 269, 415
6. Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials). [C, PS, R]	6.4  Unit 3 Project	pp. 341–351, 354–355, 416–417, 419 pp. 269, 415

## Chapter 7 Absolute Value and Reciprocal Functions

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Algebra and Number</b>		
<b>General Outcome</b> <i>Develop algebraic reasoning and number sense.</i>		
<b>Specific Outcomes</b>		
1. Demonstrate an understanding of the absolute value of real numbers. [R, V]	7.1 Unit 3 Project	pp. 358–367, 410, 413–414, 417–419 pp. 269, 415
<b>Topic: Relations and Functions</b>		
<b>General Outcome</b> <i>Develop algebraic and graphical reasoning through the study of relations.</i>		
<b>Specific Outcomes</b>		
2. Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems. [C, PS, R, T, V]	7.2–7.3 Unit 3 Project	pp. 368–391, 410–414, 417, 419 pp. 269, 415
11. Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions). [CN, R, T, V]	7.4 Unit 3 Project	pp. 392–409, 412–414, 417–419 pp. 269, 415

## Chapter 8 Systems of Equations

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Relations and Functions</b>		
<b>General Outcome</b> <i>Develop algebraic and graphical reasoning through the study of relations.</i>		
<b>Specific Outcomes</b>		
6. Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables. [CN, PS, R, T, V]	8.1–8.2 Unit 4 Project	pp. 424–460, 509–513 pp. 421, 461, 508

## Chapter 9 Linear and Quadratic Inequalities

Strand/Outcome	Chapter/Section	Pages
<b>Topic: Relations and Functions</b>		
<b>General Outcome</b> <i>Develop algebraic and graphical reasoning through the study of relations.</i>		
<b>Specific Outcomes</b>		
7. Solve problems that involve linear and quadratic inequalities in two variables. [C, PS, T, V]	9.1, 9.3 Unit 4 Project	pp. 464–475, 488–506, 510–513 pp. 421, 507–508
8. Solve problems that involve quadratic inequalities in one variable. [CN, PS, V]	9.2 Unit 4 Project	pp. 476–487, 503, 505–506 pp. 421, 507–508, 512–513