MATHEMATICS 20-1

Mr. M Cherney

COURSE OUTLINE 2023-2024

Ch 1 Sequences & Series	10(13 1st/FR)-7 Classes-Lessons	10(13) School Days	Sept 5 – Sept 21
Ch 2 Trigonometry	10-6 Classes-Lessons	10 School Days	Sept 25 – Oct 6
Ch 34 Quadratics	13-10 Classes-Lessons	13 School Days	Oct 10 – Oct 27
Ch 5 Radical Equations	8-5 Classes-Lessons	8 School Days	Oct 30 – Nov 8
Ch 6 Rational Equations	9-6 Classes-Lessons	9 School Days	Nov 9 – Nov 22
Ch 7 Absolute/Reciprocal	9-6 Classes-Lessons	9 School Days	Nov 23 – Dec 6
Ch 89 Systems/Inequalities	8-7 Classes-Lessons	8 School Days	Dec 7 – Dec 18
Course Review	11(12 TAL)-14 Classes-Lessons	12 School Days	Dec 19 – Jan 18
In Class Final Written Response	3-3 Classes-Lessons	3 School Days	Jan 19 – Jan 23
	80(85)-64 Classes-Lessons	80(85) School Days	

Final

Final Exam	Jan 24 – 29

COURSE MARKING 2023-2024

Heading	Date	Weight	Points Earned (%)	Percent (%)
Course Work		75		
Tests		90		
Ch 1 Sequences & Series		15		
Ch 2 Trigonometry		15		
Ch 34 Quadratics		20		
Ch 5 Radical Equations		10		
Ch 6 Rational Equations		15		
Ch 7 Absolute/Reciprocal		10		
Ch 89 Systems and Inequalities		15		
Homework		10		
Final Exam		25		
Final Grade				

Daily Homework for each assignment is due the day after it is assigned. It will be marked for completeness, 1 mark for each completed question out of the total assigned questions. Each question number of your work is to be highlighted once (**not** abc parts) with a marker. Each assignment is to have your Name, Date, and Assignment Label and to be clearly marked as correct or incorrect (and corrected). Notes will be collected and marked at time of the tests.

Review Quizzes are given twice per chapter or when necessary as review. Each quiz will have about 5-10 questions.

Review Summary Sheets are given for each chapter and can be used as 'I Can' statements to self assess learning or as review sheets for content covered in the chapter.

Tests may be rewritten on any chapter up to two times at any time during the semester before the beginning of the Course Review at the end of the semester. Your best score up to 79% will be taken on rewrites. Before any test is rewritten all previous tests from other chapters must be complete and at least some homework from the rewritten chapter must be handed in.

Extra Help or a quiet place to work is available during any lunch hour in my room through out the year on a come and go as you need help basis.

Web Sites that may be of help

Exam bank: http://alberta.exambank.com/
Username: pal.hca
Password: gulp
Pure math 30: http://www.bmlc.ca/PureMath30.html
Kahn Academy: http://www.khanacademy.org/
Google : doodling in math class (topic)

MATHEMATICS 20-1 FORMULA SHEET

Graphing Calculator Window Format $x[x_{\min}, x_{\max}, x_{scl}]$ $y[y_{\min}, y_{\max}, y_{scl}]$

Number Sequences

Arithmetic Sequences

$$t_n = a + (n-1)d$$

$$S_n = \frac{n(a + t_n)}{2}$$

$$S_n = \frac{n(2a + (n-1)d)}{2}$$

Geometric Sequences

$$t_n = ar^{n-1}$$

$$S_n = \frac{a(r^n - 1)}{r - 1}$$

$$S_n = \frac{rt_n - a}{r - 1}$$

$$S = \frac{a}{1 - r} \qquad |r| \le 1$$

Trigonometry

SOH CAH TOA

$\sin A = \frac{y}{r}$ $\cos A = \frac{x}{r}$ $\tan A = \frac{y}{x}$

Pythagoras

$$x^2 + y^2 = r^2$$

Angle Sum

$$\angle A + \angle B + \angle C = 180°$$

Sine Law

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Ambiguous case (always check)

Cosine Law

$$a^2 = b^2 + c^2 - 2bc(\cos A)$$

Quadratic Functions and Equations

Standard Form $y = ax^2 + bx + c$

$V\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

Vertex Form $y = a(x - p)^2 + q$

$V(p, q)$

Method of Differences $a(1,\ 3,\ 5,\ 7,\ \ldots)$

Factored Form $y = a(x - r_1)(x - r_2)$

Revenue Function (Change Function) $r = c \times n$

$r = (c + (\Delta c)x)(n + (\Delta n)x)$

Quadratic Formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Discriminant $b^2 - 4ac$

Solving Methods

Product Sum Factoring
Factor by Grouping
Completing the Square
Quadratic Formula

Common Factor
Difference of Squares
Perfect Trinomial Squares

Radicals and Radical Equations

$$\sqrt[b]{x^a} = x^{\frac{a}{b}}$$

$$m\sqrt[k]{a} + n\sqrt[k]{a} = (m+n)\sqrt[k]{a}$$

$$\left(m\sqrt[k]{a}\right)\left(n\sqrt[k]{b}\right) = mn\sqrt[k]{ab}$$

$$\frac{m\sqrt[k]{a}}{n\sqrt[k]{b}} = \frac{m}{n}\sqrt[k]{\frac{a}{b}}$$

Rational Expressions and Rational Equations

$$\frac{a}{c}+\frac{b}{c}=\frac{a+b}{c}$$

$$\frac{a}{c}\cdot\frac{b}{d}=\frac{ab}{cd}$$

$$\frac{a}{c}\div\frac{b}{d}=\frac{a}{c}\cdot\frac{d}{b}$$

Identify items Let x = 2nd item (usually)
Expression in x = 1st item

Make chart/equation

Dimension Problems
Perimeter = distance around the figure
Area = surface covered by the figure

Uniform Motion Problems

	r ×	t =	d
Item 1			
Item 2			

Mixture Problems

	unit cost ×	amount =	total cost
Item 1			
Item 2			
Mix			

Rate of Work Problems

	r ×	t =	*part done*
Item 1			
Item 2			

Absolute Value

$$|x|=\begin{cases} x, & x\geq 0 \\ -x, & x<0 \end{cases}$$

Reciprocal Functions

Original $y=f(x)$

Reciprocal $y=\dfrac{1}{f(x)}$

System of Equations

Methods
Graphically
Substitution
Elimination

Inequalities

Linear Inequalities in 2 Variables

$y\geq f(x)$

$y\leq f(x)$

Quadratic Inequalities in 1 Variable

Roots
Graphing
Test Points
Cases
Sign Analysis

$a\leq x\leq b$

$x\leq a$ or $x\geq b$

Quadratic Inequalities in 2 Variables

$y\geq f(x)$

$y\leq f(x)$