MATHEMATICS 10-C
Syllabus – Take good care of me!
Mrs. Orchard – Quarter 3, 2021

FORT SASKATCHEWAN HIGH

Name:_____

Required Materials
Foundations and Pre-Calculus Mathematics 10 textbook, a binder, a pencil, and an approved graphing calculator (TI 83 Plus, TI 84, or TI 84 Plus are recommended), dry erase markers (optional).

Supplies
Students should maintain an ***organized*** binder for mathematics. Binders should include all notes provided, assessments, and homework assignments. Binders may be arranged in any appropriate manner but should be organized so that material for a particular unit can be easily located. Student binders should be available for the teacher to review if requested. Pencils, highlighter, eraser, and a ruler are also required.

Unit (Chapter)	**Classes**	***Exam Date**	**Exam mark**
1. Trigonometry (2)	6	February 11	_____
EXAM 1	1		
2. Roots and Powers (4)	4		
EXAM 2	1	February 19	_____
3. Factors and Products (3)	6		
EXAM 3	1	March 2	_____
4. Relations and Functions (5)	3		
EXAM 4	1	March 9	_____
5. Linear Functions (6)	5		
EXAM 5	1	March 17	_____
6. Systems of Linear Equations (7)	5		
EXAM 6	1	March 25	_____
7. Measurement (1)	5		
EXAM 7	1	April 13	_____
Review			

FINAL EXAM (30%)
TBA

***Exam dates may vary**

Contact info: alice.orchard@eips.ca

Evaluation

If you are absent for an exam, you are required to write the exam **upon your return** at an agreed upon time and location.

Categories	Chapters	Weight (% of course)
Measurement	1: Measurement	8
Trigonometry	2: Trigonometry	8
Factors and Products	3: Factors and Products	13
Roots and Powers	4: Roots and Powers	10
Relations and Functions	5: Relations and Functions	9
Linear Functions	6: Linear Functions	12
Linear Systems	7: Linear Systems	10
Final Exam		30

Summative Assessments:
There will be a unit exam after each unit. In addition to the 7 unit exams, assignments designed to promote understanding will occur throughout the course**. Staying on task and keeping pace with the class is important**. UNIT STUDY NOTES should be presented to me **prior** to any exam. Opportunity to improve an exam mark will be offered once throughout the semester. Rewrite opportunities will be at the teacher's discretion after you have filled out a re-write form and have displayed evidence of practice and attention to further your learning. The mark you achieve in class will be worth 70% of your final Math 10C mark, leaving the final exam worth 30% of your final mark.

Formative Assessment: A variety of assessment tools will be used. Formative assessment is the ongoing practice of learning to measure student understanding of the course material. Homework, quizzes, self-checking activities and other assignments are designed to gauge understanding on a regular basis. Specific and descriptive feedback shared in face to face discussions with students, peer assessment and/ or group work will be used to improve the quality of student learning. In addition, students will be given a syllabus of the course that includes the following:

- Couse outline with anticipated exam dates
- Class expectations
- Key learning outcomes
- Assignments
- Space to enter personal notes
- Formula sheet

Classroom Expectations

1. **Give your best effort every day; ask questions when you do not understand.**
2. Attend class regularly.
3. Conduct yourself in a **courteous**, **respectful** manner and comply with all school rules.
4. If you are late, enter class in a respectful manner and sign in.
5. If you need to leave the classroom, you must sign out.
6. Be sitting at your desk when the bell rings.
7. Bring your required materials to class every day (pencil, textbook, paper, calculator, erasable markers).
8. Consumption of any food or drink (with the exception of water) during class is highly discouraged,
9. Not use personal electronics (phones, music, games) **unless directed to do so**.
10. Review notes and class work every night and complete homework as assigned. **DON'T PRACTICE UNTIL YOU GET IT RIGHT. PRACTICE UNTIL YOU DON'T GET IT WRONG.**
11. Preparation to leave the classroom at the end of the period includes ensuring that your work area is neat and sanitized.

Unit 1 – TRIGONOMETRY Ch 2

DATE Sections

2.1 The Tangent Ratio – page 70
Assignment: page 75: 3-5, 7-9, 10 PC2, 11-13, 17, **19, 20**

2.2 Using the Tangent Ratio to Calculate Lengths – page 78
Assignment: page 82: 3-6, 8, 10, 11

2.4 The Sine and Cosine Ratios – page 89
Assignment: page 95: 4-15

2.5 Using the Sine and Cosine Ratios to Calculate Lengths – page 97
Assignment: page 101: 3-12, **13, 14**

2.6 Applying Trigonometric Ratios – page 105
Assignment: page 111: 3-16

2.7 Problem Solving – page 113
Assignment: page 118: all

Big Ideas:

- Pythagorean Theorem
- SOH CAH TOA – labelling sides and angles
- Angles of inclination; angle of depression
- Solving 2 triangle problems
- Word problems
- Calculator – mode, 2^{nd} function, "running mode"

Unit 2 - ROOTS & POWERS Ch 4

DATE Sections

4.1 Estimating Roots – pg 204
Assignment: page 206: 2, 3, 4a, 5, 6

4.2 Irrational Numbers – pg 207
Assignment: page 211: 2-5, 10, 12, 14, 15

4.3 Mixed and Entire Radicals – pg 213
Assignment: page 218: 4,5,7,9, 10(PC5), 11 (PC5), 12 (PC5), 13-25 (19 a only), 22 (PC1), 24 and 25 optional

4.4 Fractional Exponents and Radicals – pg 222
Assignment: page 227: 1, 2 together, 3-12, 15-21

4.5 Negative Exponents and Reciprocals – pg 229
Assignment: page 233: 3, 4 PC2, 5-8, 9 acdfg, 10-13 (class), 14-19
+ memorize laws

4.6 Applying the Exponent Laws – pg 237
Assignment: page 242: 2-8, 9 simplify only, 10 PC2, 11 simplify only, 12-14, 15 PC2, 16 PC2, 17, 10, 22a

Bid Ideas:

- Number system
- Exact answer vs rounded answer
- Mixed to entire radical
- Entire to mixed radical
- Exponent laws:
  - Previous laws
  - Fractional exponents
  - Negative exponents
- Applying all laws to simplify

Unit 3 – FACTORS & PRODUCTS Ch 3

DATE Sections (chapter 3)

3.1 Factors and Multiples of Whole Numbers – pg. 134
Assignment: page 140 5-7, 10ace, 11ac, 21,22

Polynomials – naming, classifying, operations
Assignment: worksheets

3.7 Multiplying Polynomials – pg. 182
Assignment: PART 1 : page 186: 5 cef, 6 PC4, 7a, 18 PC2, page 194: 4
PART 2 : page 177 : #8; page 186 : 17, 8, 11, 14, 15 ace, 19ace, 21 ace
3.3 Common Factors of Polynomials – pg. 148
Assignment: page 155: 7 bdf, 8-10 ace, 12a, 14 ac, 16 ace, 18

3.5 Polynomials when a = 1 – pg. 159
Assignment: page 166: 11 aceg, 14 aceg, 15 ac, 17, 19, 13

3.6 Polynomials when a ≠ 1 – pg. 168
Assignment: page 177: 13 aceg, 15 aceg, 16, 19 aceg, 12, 14b, 18

3.8 Factoring Special Polynomials – pg. 188
Assignment: page 194: 6, 10 aceg, 13 ac, 21 ace
7a, 8, 12 acd, 13 bd

Chapter Review and Practice Test – pg. 196, 201

Big Ideas:

- Classifying polynomials
- Adding and subtracting polynomials
- Simplifying monomials
- Factors and multiples of whole numbers
- Multiplying polynomials
  - Monomials x polynomial
  - Binomial x binomial
- Factoring (think pyramid)
  - GCF
  - Difference of squares
  - Trinomials

Unit 4 – RELATIONS & FUNCTIONS Ch 5

DATE Sections

5.1 Representing Relations – pg. 256
Assignment: page 262: 3, 4, 9, 10, 13, 14

5.2 Properties of Functions – pg. 264
Assignment: page 270: 4-8, 11, 14-18

5.3 Interpreting and Sketching Graphs – pg. 276
Assignment: page 281: 3-5, 8, 10, 12, 13, 16, 18

5.5 Graphs of Relations and Functions – pg. 287
Assignment: page 294: 4, 6-9, 11-12, 15, 16, Dom and range activity

5.6 Properties of Linear Relations – pg. 300
Assignment: page 308: 3-7, 15-17

5.7 Interpreting Graphs of Linear Functions – pg. 311
Assignment: page 319: 4, 6, 10, 11, 16

Big Ideas:

- What is a relation
- What is a function
- Interpreting Graphs
- Rate of Change
- Domain & Range
- X and y intercepts

Unit 5 – LINEAR FUNCTIONS Ch 6

DATE Sections

6.1 Slope of a Line – pg. 332
Assignment: page 340: 6-9, 11, 13, 15-17, 20, 22, 23, 24a, 26

6.2 Slopes of Parallel and Perpendicular Lines – pg. 344
Assignment: page 349: 3ad, 4cb, 5cd, 6bc, 8bd, 9-11, 13, 16, 17, 19, 22

6.3 Investigating Graphs – pg. 354
Assignment: page 356: 1a, 3-7

6.4 Slope y-intercepts Form of an Equation – pg. 357
Assignment: page 362: 4abef, 5, 6 ab, 7-9, 11-22

6.5 Slope-Point Form of an Equation– pg. 365
Assignment: page 372: 4, 6, 8-10, 12, 14a, 16, 19, 22, 25

6.6 General Form of an Equation – pg. 377
Assignment: page 384: 4-7, 9, 17-19, 24

Big Ideas:

- What is a linear function
- Determining slope
  - From a graph
  - From an equation
- Parallel and Perpendicular lines
- Types of equations:
  - Slope y-intercept form
  - Point-Slope Form
  - General Form

Unit 6 – SYSTEMS OF LINEAR EQUATIONS Ch 7

DATE Sections

7.1 Developing Systems of Linear Equations – pg. 394
Assignment: page 401: 1-18

7.2 Solving a System Graphically – pg. 403
Assignment: page 409: 3bd, 4b, 5, 6, 7bd, 8, [9, 11, 12, 15, 16] -later

7.4 Solving a System Using Substitution – pg. 416
Assignment: page 425: 4bc, 5ad, 6, 8, 19

7.5 Solving a System Using Elimination – pg. 428
Assignment: page 437: 3, 4, 6bd, 7b, 8-10, 12ad, 13, 17, 19

7.6 Properties of Systems of Linear Equations – pg. 442
Assignment: page 448: 4, 7, 8, 10, 11, 22

7.3 Using Technology to Solve Graphically – pg. 411
Assignment: page 412: 1-5

Word problems: page 425: 11, 12, 15-18, 24

Big Ideas:

- What is a system
- What is a solution to a system of equations
- Determining a solution to a system
  - Graphically
  - Algebraically by substitution
  - Algebraically by elimination
- Properties of linear systems
- Word problems, including writing equations

Unit 7 – Measurement Ch 1

DATE Sections

1.1 Imperial Measures of Length- Pg. 4
Assignment: page 11: 3, 6-8, 11-14, 18, 19, 21

1.3. Relating SI and Imperial Units- Pg. 16
Assignment: workbook assignment

1.2 Measuring Length and Distance- Pg. 13
Assignment: page 22: 4 PC3, 5, 6, 8, 9, 11, 13

1.4 Surface Areas of Right Pyramids and Right Cones- Pg. 26
Assignment: page 34: 4-10, 15, 18

1.5 Volumes of Right Pyramids and Right Cones- Pg. 36
Assignment: page 42: 4-9, 11, 12, 14

1.6 Surface Area and Volume of Spheres- Pg. 45
Assignment: page 51: 3 and 4 PC2, 5, 7-12, 15, 17, 20, 21

1.7 Solving Problems Involving Objects- Pg. 55
Assignment: page 59: 3, 5, 8, 9, 10b

Big Ideas:

- Imperial and SI (Metric) measurements
- Conversions
- Determining Surface Area and Volume of 3D objects
- Word problems
- Understanding formulae

Math 10C Formula Sheet

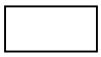
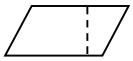
Area and Volume Formulas

Key

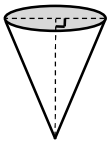
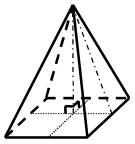
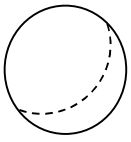
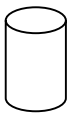
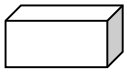
b = base	l = length	V = volume	d = diameter
h = height	A = area	$S.A.$ = surface area	r = radius
w = width	s = slant height	c = circumference	

NOTE: Use the π button on your calculator for π

Area

Triangle		$A = \frac{1}{2}bh$
Rectangle		$A = lw$
Trapezoid		$A = \frac{1}{2}h(b_1 + b_2)$
Parallelogram		$A = bh$
Circle		$A = \pi r^2$

Volume and Surface Area

Right circular cone		$V = \frac{1}{3}\pi r^2 h$	$S.A. = \pi rs + \pi r^2$ (closed top)
Right rectangular pyramid		$V = \frac{1}{3}lwh$	$S.A. = area\ of\ triangles + area\ of\ base$
Sphere		$V = \frac{4}{3}\pi r^3$	$S.A. = 4\pi r^2$
Right circular cylinder		$V = \pi r^2 h$	$S.A. = 2\pi rh + 2\pi r^2$ (both ends closed)
Rectangular solid		$V = lwh$	$S.A. = 2(lw) + 2(hw) + 2(lh)$

Equivalencies

1 foot (ft) = 12 inches (in)
1 yard (yd) = 3 ft = 36 in
1 mile (mi) = 1 760 yd = 5 280 ft
1 acre = 43 560 square feet (ft^2)
1 hour (h) = 60 minutes (min)
1 min = 60 seconds (s)

1 cup = 8 fluid ounces (fl oz)
1 pint = 2 cups (c)
1 quart = 2 pints
1 gallon = 4 quarts
1 pound = 16 ounces (oz)
1 ton = 2000 pounds (lb)

1 litre (l) = 1000 millilitres (ml) = 1000 cubic centimeters (cm^3)
1 tonne = 10000 kilograms (kg)
1 metre (m) = 100 cm = 1000 millimetres (mm)
1 kilometre (km) = 1000 m
1 gram (g) = 1000 milligrams (mg)
1 kg = 1000 g

Approximate Conversions

SI (Metric) to Imperial Units	Imperial to SI (Metric) Units
$1\ mm \cong \frac{4}{100}\ in$	$1\ in \cong 2.5\ cm$
$1\ cm \cong \frac{4}{10}\ in$	$1\ ft \cong 30\ cm \cong 0.30\ m$
$1\ m \cong 39\ in \cong 3\frac{1}{4}\ ft$	$1\ yd \cong 0.90\ m$
$1\ km \cong \frac{6}{10}\ mi$	$1\ mi \cong 1.6\ km$

Right-Triangle Trigonometry

SOH CAH TOA $\quad sin\theta = \frac{opp}{hyp} \quad cos\theta = \frac{adj}{hyp} \quad tan\theta = \frac{opp}{adj}$

Pythagorean Formula: $a^2 + b^2 = c^2$

Linear Functions

$slope(m) = \frac{rise}{run} = \frac{y_2 - y_1}{x_2 - x_1}$ $\quad$ Slope y-intercept form: $y = mx + b$

General form: $Ax + By + C = 0$ $\quad$ Point-slope form: $(y - y_1) = m(x - x_1)$