

Pre-Calculus 10

INSTRUCTOR: Cecilia He

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SCHEDULE: Monday- Friday 14:15 pm – 15::45 pm (13:30 pm – 14:45 pm Wednesday)

ROOM: 109

RATIONALE

This course is designed to provide students with developing, demonstrating and applying mathematical understandings that are required for the Pre-Calculus 11 and Foundations of Mathematics 11. The following topics are included: Exponents; relations and functions; system of equations; polynomial expressions and factoring; arithmetic sequences; trigonometry; financial literacy.

BIG IDEAS

1. Algebra allows us to **generalize** relationships through abstract thinking.
2. The meanings of, and **connections** between, each operation extend to powers and polynomials.
3. Constant rate of change is an essential attribute of linear **relations** and has meaning in different representations and contexts.
4. Trigonometry involves using **proportional reasoning** to solve **indirect measurement** problems.
5. Representing and analyzing **situations** allows us to notice and wonder about relationships.

To be successful in this course a student should have strong mathematics skills and problem-solving abilities as there is an emphasis on applying mathematics to solving problems.

Remember, to achieve success in Maths 10, like in all courses, you must invest time and effort to learn and practice course material. A few tips for helping you succeed are:

- Review daily and work through lots of problems. You can NEVER do enough problems. Remember to practice perfect - do not practice bad habits.
- Start preparing early for tests, quizzes and exams. Summarize your notes and practice additional problems.
- Get help early

EVALUATION

Homework	10%
Quizzes	25%
Major Assignment	25%
Unit Test	20%

Final Exam	20%
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****Any student caught cheating on homework, assignments, or tests will receive a 0 on the work. A second incident of cheating will result in parents and the principal being contacted****

*****Any student with an unexcused absence on the day of a test or quiz, will receive a mark of zero unless a note is provided from a parent/guardian, excusing the student from the missed class*****

Homework

I will check homework at the beginning of each class. I will give you one of the following marks.

0 --- incomplete, copied, or poor effort

0.5 --- complete, but poorly done OR about half of the questions are complete

1 --- a good effort was put into the homework, most of the questions are completed

Quizzes

I will have short quizzes about 2 or 3 times each week. The quizzes are for me to check your understanding, and for you to practice what you have learned.

EXPECTATIONS:

- Adhere to the academic integrity policy
- Contact your teacher when help is needed
- Review feedback from assignments and tests, where applicable
- Work to complete the course in a timely manner
- Communicate respectfully

Cell Phones and Technology in the Classroom

Please hand in your cell phone before the class begins. You are allowed to use it when you told to do so.

I expect to have your full attention during class, just like you expect to have my full attention when talking to me.

Cheating and Plagiarism

Plagiarism and cheating will NOT be tolerated. First offence everyone involved gets zero. Second offence everyone involved will be asked to leave the course. I will often ask you to work

together, but you cannot copy each other's work. When working together, you must show all your work and have individual responses to questions.

And most importantly: Own your learning. At the end of the day, **YOU** are the one who controls your success in this course. Stay on top of your work, recognize when you need to ask for help, and give it your all.

COURSE SCHEDULE

UNIT	Section	Estimated Time
Unit 1 Arithmetic Sequence and Series	<ul style="list-style-type: none"> • arithmetic sequences: <ul style="list-style-type: none"> - applying formal language (common difference, first term, general term) to increasing and decreasing linear patterns - connecting to linear relations - extension: exploring arithmetic series 	1 week
Unit 2 Polynomials	<ul style="list-style-type: none"> • prime factorization: <ul style="list-style-type: none"> - expressing prime factorization of a number using powers - identifying the factors of a number - includes greatest common factor (GCF) and least common multiple (LCM) - strategies include using factor trees and factor pairs • multiplication: <ul style="list-style-type: none"> - applying the distributive property between two polynomials, including trinomials - connecting the product of binomials with an area model • factoring: <ul style="list-style-type: none"> - greatest common factor of a polynomial - simpler cases involving trinomials ($y = x^2 + bx + c$) and difference of squares 	3.5 weeks
Unit 3 Exponents	<ul style="list-style-type: none"> • powers: <ul style="list-style-type: none"> - positive and negative exponents - exponent laws - evaluation using order of operations 	1.5 weeks

	<ul style="list-style-type: none"> - numerical and variable bases 	
<p style="text-align: center;">Unit 4 Trigonometry</p>	<ul style="list-style-type: none"> • trigonometric: <ul style="list-style-type: none"> - sine, cosine, and tangent ratios - right-triangle problems: determining missing sides and/or angles using trigonometric ratios and the Pythagorean theorem - contexts involving direct and indirect measurement 	2.5 weeks
<p style="text-align: center;">Unit 5 Linear Relations and Functions</p>	<ul style="list-style-type: none"> • functions and relations: <ul style="list-style-type: none"> - communicating domain and range in both situational and non-situational contexts - connecting graphs and context - understanding the meaning of a function - identifying whether a relation is a function - using function notation • linear functions: <ul style="list-style-type: none"> - slope: positive, negative, zero, and undefined - types of equations of lines (point-slope, slope intercept, and general) - equations of parallel and perpendicular lines - equations of horizontal and vertical lines - connections between representations: graphs, tables, equations 	3 weeks
<p style="text-align: center;">Unit 6 Systems of Linear Equations</p>	<ul style="list-style-type: none"> • systems: <ul style="list-style-type: none"> - solving graphically - solving algebraically by inspection, substitution, elimination - connecting ordered pair with meaning of an algebraic solution - solving problems in situational contexts 	1.5 weeks
<p style="text-align: center;">Unit 7</p>	<ul style="list-style-type: none"> • financial literacy: <ul style="list-style-type: none"> - types of income 	1 week

Financial Literacy	- income tax and other deductions	
Final Review		1 week