Pre-Calculus 10

Winter Semester 2020

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Office Location/Hours: Room 110 - Hours after school or by appointment

Course Description

Foundations of Math and Pre-Calculus 10 includes the study of trigonometry, polynomials, powers, prime factorization, slopes, relations and functions, linear functions, linear equations, systems, and net/gross pay.

Pre-calculus 10 focuses on the following 5 Big Ideas:

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

Course Overview

Students will be able to efficiently break down or factor numbers and extend the rules to polynomial expressions. With factoring, they will be able to predict possible measurements such as dimensions of geometric figures when some properties are given such as area and volume. Students will be able to successfully deal with expressions with positive and negative powers and be empowered to problem-solve with formulas that have this type of behaviour. They will see how multiplication of polynomials can be modelled as areas of rectangles with the use of Algebra tiles so that products of polynomials are not merely a result abstract thinking but concrete representations of quantities that people sometimes need to measure like area of rectangular objects.

Students will be able to portray relationships between two quantities using different ways like graphs, words, ordered pairs, arrow diagrams, tables, and equations. They will use functions to represent how they think quantities depend on each other and will be using numerical values as input and will be finding for output values. They will see that linear functions can be seen as equations that can be written in different forms and can be graphed in different ways. They will be able to find the slope of a linear equation and- make meaning of it as a rate of change between two quantities. They will also be able to predict future values in a sequence of numbers that behave in a constant arithmetic pattern and see how this type of math may be useful in some scenarios.

Students will solve some type of real-life problems by solving systems of linear equations. They will solve for measurements of distance or dimensions or solve for angles between objects or places through proportional reasoning and indirect measurement. They will be able to compute for gross pay and net pay.

Students will engage in collaborative tasks that will require them to engage in critical thinking to apply the concepts learned in the course to solve some real-life scenarios, solve puzzles or win games.

Curricular Units

The course will be divided into the following units:

Unit 1: Prime Factorization and Powers
Unit 2: Multiplication of Polynomials
Unit 3: Factoring Polynomials
Unit 4: Relations and Functions
Unit 5: Arithmetic Sequences
Unit 6: Slopes, Linear Functions, and Equations of Lines
Unit 7: Systems of Linear Equations
Unit 8: Primary Trigonometric Functions
Unit 9: Financial Literacy

Evaluation Scheme

- Homework/Participation: 10%
- Quizzes: 10%
- Projects: 10%
- Unit Tests: 30%
- Midterm Exam: 20%
- Final Exam: 20%

Class Rules and Expectations

1. Come on time! If you are more than 15 minutes late, you will be marked absent.
2. Bring a notebook and pen and any other basic school supplies to every class. There is no excuse for coming to class unprepared!
3. Do not use your phones in class unless I say you can! If I permit you to use your phones, that is strictly for class work, which means translation, research or group work. This does not mean snapchat, Instagram, Facebook, Twitter, or any other social media!
4. If I see your phones out when they're not supposed to be, I will take them away. If I take your phone away more than three times, they will stay with me for an entire day.
5. Assignments have due dates! If you hand in your work late, I will deduct 10 percent from your grade for every day that you are late. If you have a good reason for handing things in late, such as illness or an emergency, I will need either a doctor's note or an email from a parent/guardian.
6. Cheating in any way is not tolerated under any circumstances. If you copy your work from an online source or classmates, you will be given a grade of zero.
7. Attendance is important! If you are sick, please send an email to your advisor. If you miss a class, please check to see what you missed. Serious illnesses which cause you to miss more than two classes will require a doctor's note.
8. **Bring a laptop/tablet with a charger to school everyday!!!**