**Outline for Karen’s Tutoring Plan.**

**Section 0**

Review

* 1. System of equations, two and three variables.
  2. Quadratic Relations
  3. Graphing Linear and Quadratic Equations
  4. Transformations
  5. Trigonometry, Sine and Cosine Law.

**Section 1**

Polynomials.

* 1. Introduction to Polynomials
  2. Roots, Factoring and Quadratic equation
  3. Graphs of Polynomials
  4. Cubic Roots and Long division
  5. Pascal’s Triangle and Binomial theorem

**Section 2**

Inequalities.

2.1 Introduction to inequalities  
2.2 Solving linear inequality  
2.3 Solving quadratic inequality.  
2.4 Solving Absolute inequality  
2.5 Graphing inequalities.  
2.6 Solving System of inequalities.   
2.7 Solving cubic inequalities

**Section 3**

Functions.

3.1 Revisiting functions and types of functions.  
3.2 Transformations.  
3.3 Review: Solving and graphing functions(quadratics).  
3.4 Review: Finding the vertex, intercept, axis of symmetry for quadratics.  
3.5 Roots and Radical functions overview  
3.6 Radical function graphing  
3.7 Rational exponents and rational functions overview  
3.8 Rational function graphing  
3.9 Exponential function overview  
4.0 Exponential function Graphing  
4.1 Logarithmic function overview  
4.2 Logarithmic function Graphing  
4.3 Trigonometric functions overview  
4.4 Trigonometric function graphing  
4.5 Circle and Ellipse

**Section 4**

Trigonometry.

4.1 Sin, Cos, Tan, Csc, Sec, Cot, Inverses.  
4.2 Law of sines, Law of cosines  
4.3 Similar Figures and Polygons.  
4.4 Basic Triangle Stuffs, Laws, Bisector, Midsegment  
4.5 Radians and Arc length  
4.6 Quadrants  
4.7 Trigonometric Identities

**Section 5.**

Sequences

4.1 Sequences and Series Intro.  
4.2 Arithmetic and Geometric.  
4.3 Recursive formula, explicit formula and sums  
4.4 Convergence and Divergence  
4.5 Infinite Sums.  
4.6 Repeat decimals as fractions

**Section 6.**

Probability.

6.1 Intro to probability  
6.2 Permutation and Computation  
6.3 Independent events and Conditional Events.  
6.4 Addition rules and Normal Distribution  
6.5 Expected value  
6.6 Z-value.

**Section 7.**

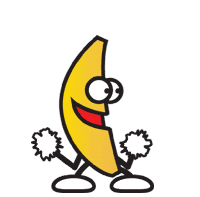
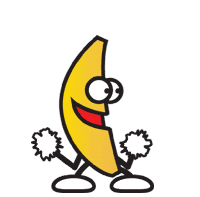
Figures

7.1 Areas, Areas, Areas  
7.2 Volumes, Volumes, Volumes.   
7.3 Surface Area, Surface area, Surface area  
7.4 Combinations.

**Section 8.**

Vectors and Matrix

8.1 2d and 3d vectors  
8.2 Unit, scalar and components.  
8.3 Permutation of vectors.   
8.4 Introduction to Matrix.  
8.5 Permutations of Matrix  
8.6 Inverse of Matrix

**How Tutoring is Going to Work.** 

Hiya! This is Kai. This is an outline for how my tutorial is going to work(hopefully)

**Before the tutorial.**   
After every tutorial, I am going to give you a package of questions I expect you to finish. This question will be divided into two sections. The first is a review of what is taught in the tutorial. The second will be a preparation for the next tutorial.

**During the tutorial. (2 Hours)**

Every tutorial is going to start with a speed practice of basic concepts (eg. Find x). Followed by correction of the package of question given in the last tutorial. This is going to be the first 45 minute to an hour. The second hour will be the topic we are covering today. Every tutorial, we are going to try to cover 2-3 topics if possible.

**After the tutorial**

I am going to give you a package at the end of each tutorial. I expect you to finish the package. If not…well…I will throw birds at you.



**After Each Section.**

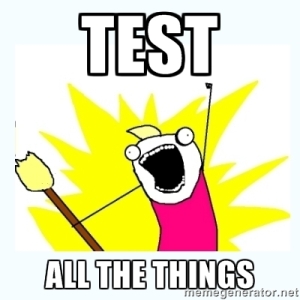
After each section there will be a test. What is the test on? The following meme answers the question.

**After Every 3 Sections.**

After every three sections, I am going to give you an Exam. DADA DA DUM!!!!!!!!

**Contact Information.**

**Zikai(Kai) Wang.  
647-787-4013.  
Message Me if you need any help on anything(your homework, the package, school, life…etc.)**



**PACKAGE #1. System of Equations, Quadratic Equations and Graphing**

This is the package for this week. Print this out and do it.



**Review**

**System of Equations.**

1. **Solve the following by substitution, if it’s solvable.**

|  |  |  |  |
| --- | --- | --- | --- |
| *y* + 4*x* | = | 8 |  |
| 5*x* + 2*y* | = | 13 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 4*y* + 2*x* | = | 5 |  |
| *x* | = | 8 - 2*y* |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 2*x* + 2*y* | = | 4 |  |
| 5*y* - 3*x* | = | 6 |  |

1. **Solve the following by Addition or Subtraction, if it’s solvable.**

|  |  |  |  |
| --- | --- | --- | --- |
| 4*x* - 4*y* | = | -4 |  |
| 3*x* + 2*y* | = | 12 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 3*x* + 4*y* | = | 12 |  |
| 18 - 2*x* | = | 6*y* |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 4*y* - 6*x* | = | 10 |  |
| 6*y* | = | 15 + 9*x* |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 7*x* + 8*y* | = | 23 |  |
| 8*x* + 7*y* | = | 22 |  |

**Solve by Completing the Square**

1. 4x2 – 8x =5
2. 9x2 + 30x =11

**Solve by Quadratic Formula**

1. 2x2 – 4x = 3

**Solve for X by Factoring**

1. 25x2 – 20x = - 4

**Preparation.**

**Factor the following equations. Solve for x.**

1. X2 – 4 = 0
2. X3 – 9X = 0
3. X2 – 4X= - 4
4. X2 - 2X+1 = 0
5. X3 – 9X2 - 4X +18 = 0

Find the factors of 21, Which set of factors add up to 10?

Find the factors of 18, Which set of factors add up to 11?

Given the equation 4X– 2Y=20, Find its Y intercept, X intercept and Slope.

Given a line with slope 2 and intersecting the point (3,4), find its Y intercept and X intercept.

Given a line modelled by two points (1,2) and (2, -2), Find its Y intercept and X intercept.

Given Y= X2 , Find Y when X equals the following values

|  |  |
| --- | --- |
| X | Y |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |

Given Y= 2X2 , Find Y when X equals the following values

|  |  |
| --- | --- |
| X | Y |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |

Given Y= 1/2X2 , Find Y when X equals the following values

|  |  |
| --- | --- |
| X | Y |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |

Draw a Flying Hippo. : )