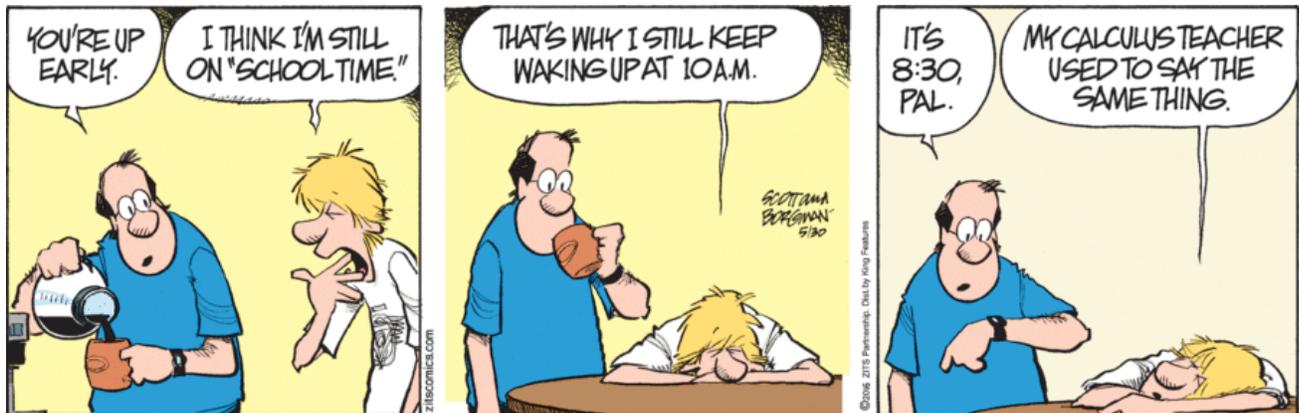Name: _____

Calculus

(8/23-9/21)

"**Do not worry about your difficulties in Mathematics. I can assure you mine are still greater."** – Albert Einstein

Essential understanding

Congratulations! You've made it! While all Mathematics courses so far have been exercises in understanding and modeling our world, this will be the first time you will find yourself connecting concepts from all over to address and simplify seemingly impossible questions and tasks. While we have been building your vocabulary for the past decade, it's now time to begin creating elegant mathematical sentences.

Overview:

The first few weeks of this quarter will be dedicated to reviewing fundamental concepts that will be needed to understand future topics. We will also spend time getting our math "sea-legs" back and discussing new procedures and resources now available to everyone.

General Guidelines:

Lessons:

- Two per week
- Meet in front of the whiteboard
- Three Before Me: Ask three peers before me if you have a question
- If you're having trouble with concepts, attend tutoring (4-4:30pm M/T/Th/F Rm 3)

Individual Work:

- 34% of total grade
- Problem sets due the following class meeting at the beginning of class (silver basket)
- Must be submitted on loose paper

Group Work:

- 33% of total grade
- Includes any assignment labeled "Group Activity" or "Group Assignment"
- Includes week-long projects or final projects

Quizzes/Assessments:

- 33% of total grade
- Must be completed on scheduled date
- Resubmissions allowed for half of the remaining credit OR retakes allowed during tutoring hours
- One side of one sheet of 8.5" x 11" paper allowed for notes, formulas, or any other useful information

Late Work:

- Late individual work accepted **at most** two days late (10% deducted each day/weekend)
- Make up assessments only allowed with an **excused absence**; retakes done during tutoring hours
- Extensions granted after signing petition form AND emailing your parents (cc me in the email)

Materials:

Math Journal:

- Grid paper (spiral ring and composition are both acceptable)
- Used for notes during lessons and activities

Three Prong Folder/Binder:

- Used for extra papers/worksheets handed out during class
- HOLD ONTO YOUR ASSESSMENTS!

Calculators:

- Allowed during class
- NOT allowed during assessments

Lessons:

Content Lesson Themes

____ Linear Equations and Graphs   ____ Transformations of Functions

____ Functions and Graphs   ____ Inverse Functions

____ Exponential/Logarithmic Functions

Logistical Lessons

____ Study Guides   ____ IXL

____ Vocabulary Options   ____ Formatting/Submitting Problem Sets

____ Google Classroom

Guiding question 1:

What is Mathematics?

Assignments	Due Date (BoC)
Week 1/2 (8/23-8/31): ____ *1)* Read the first two pages of the study guide and mark it up. Be sure to highlight/ underline information you find important, as well as any parts which are confusing. ____ *2) Individual Work- Cultural Artifacts***:** Mathematics is one of many skills that we use in our daily lives. Without realizing it, you are intuitively calculating amazing and complex situations at any given moment. Whether it's estimating the strength and direction you throw a basketball to make a three pointer or the ways you	**Mon 8/27** (5,6) **Tues 8/28** (7,8)

move your body to the rhythm of a beat, you are living mathematics. For your first project, **you will bring in an artifact which represents your culture and/or passions. In addition, you will write a paragraph explaining what object you've brought, how it personally relates to you, and how mathematics relates to it.**	
_____ *3) Group Activity – Coordinating Hobbies/Passions:* Using the gallery walk as inspiration, agree on two activities to use as the x and y axis of a coordinate plane. Convert your interest level of the two into ordered pairs (x, y) and graph on the plane!	**Mon 8/27 (5,6)** **Tues 8/28 (7,8)**
_____ *4) Group Activity – Magic Squares:* Create three 3x3 magic squares with your partners and submit images of them to google classroom (include the name of you and your group members). After, see if you can create a 4x4 (or even 5x5) magic square.	**Thurs 8/30 (5,6)** **Fri 8/31 (7,8)**
Week 3/4 (9/4-9/7): _____ *5)* Vocabulary: **calculus, independent variable, dependent variable, domain, range, power function, polynomial, rational function, asymptote, trigonometric function, inverse, exponential, logarithm** (do one of the below). a. Complete a vocabulary graphic organizer, making sure to include b. Create a mind-map with connections, a story, or a drawing with captions that shows the connections between the above terms. c. Create vocabulary cards of the above terms. Be sure to include an example for each. _____ *6) Problem Sets:* This will be found in the Pre-Calculus textbook (pdf will be provided on google classroom). _____ a. p.11 #'s 1, 2, 5, 7, 11, 15, 19, 21, 33, 35, 45, 53 _____ *7) IXL:* Log into your account and take the diagnostic test.	**Mon 9/10 (5,6)** **Tues 9/11 (7,8)** **Sun 9/9**
Week 5 (9/10-9/14): _____ *8) Problem Sets:* These can be found in the textbook (unless otherwise stated!) _____ a. **1.1:** p.12 #'s 1-6 all, 9, 10, 15, 16, 29 _____ b. **1.6:** p.74 #'s 1, 3, 5, 9, 11, 13, 15, 27, 29, 45, 48, 49 _____ *9) IXL:* Complete 20 questions **OR** submit an hour of practice **OR** make progress in at least five skills throughout the week.	**Sun 9/16**

Week 6 (9/17-9/21): _____ *10) Group Activity – Teaching Transformations*: Three groups will be created to research three transformations in graphs: **shifts, reflections,** or **non-rigid (stretch/shrink).** A visual will then need to be created showing the general transformation and then a specific example. You may use any resource (though I HIGHLY recommend looking at p.33-35 in the textbook. You will have an hour to prepare presentations (no longer than 3 minutes!). _____ *10) Problem Sets:* These can be found in the textbook (unless otherwise stated!) _____ b. **1.5:** p.62 #'s 1, 3, 7, 9, 11, 13, 15, 19, 24, 25, 41, 52	**Mon 9/17 (5,6)** **Tues 9/18 (7,8)**

_____ *20)* **ASSESSMENT:** **Functions, Inverses, and Their Graphs**

(Thurs 9/20 or Fri 9/21)