Summer Assignment
College Preparatory and Honors Geometry
Summer 2014

Dear Algebra 1b, College Prep and Honors Geometry students,

By now you are probably familiar with the traditional ASFG math summer packet – a bunch of review problems that are downloaded from the school webpage, printed out on your printer and then tediously completed by-hand. You are expected to carry it out completely and correctly on your own. You are given no reference materials except for a list of websites that offer math tutorials. It is up to you to find the tutorial(s) that you need and can understand. Of course your Algebra I (or Honors Algebra I) notebook would come in handy, but you probably threw it away when you cleaned out your locker.

Since you are a 1:1 laptop computer generation, your summer program will be different. You will utilize an online independent study and assessment program in mathematics based on the *Khan Academy.* Like all summer study programs, the goal of this program is to help you practice the concepts learned in Algebra I (or Honors Algebra I) so that you are prepared to study math at the next level this fall. The content and philosophy of this summer packet is consistent with the math department goals and will enable you to:

(1) value mathematics,
(2) become confident in your ability to do mathematics,
(3) become mathematical problem solvers,
(4) communicate mathematically, and
(5) reason mathematically.

History of the *Khan Academy*:

The *Khan Academy* (http://www.khanacademy.org) is a free virtual study center designed to help people of all ages learn a variety of subjects using a series of focused videos and assessments. It was created in 2006 by Salman "Sal" Khan, a bright young man with three degrees from MIT and a Harvard MBA. He began his professional career as a hedge fund manager, but spent a fair amount of his spare time tutoring his cousins in math and science over the Internet. Eventually this led to the uploading of his instructional videos to *YouTube* where their popularity exploded as learners outside Khan's family began viewing them. Answering to a higher calling, he quit his job in finance, began the *Khan Academy* as a non-profit organization, and starting making more instructional videos out of his home in Mountain View, California. Currently YouTube hosts over 4,100 of Khan's videos.

The beauty of Khan's system is that you can start at your own level, progress at your own pace and receive immediate feedback after responding to a question. If the feedback is negative (and you desire a better foundation of the key concepts), you can follow the link from the troubling question to the appropriate instructional video to put you back on track. To keep learners motivated, "gaming tricks" are employed. For example, after a learner answers a series of questions correctly on a consistent basis, he or she is considered "proficient" in that particular topic and other slightly more advanced topics are suggested

for the student to tackle next. An elaborate "medal" system is also available to reward student performance and persistence.

You have already received a brief orientation to the Khan Academy webpage in your 8th grade math class and have selected an ASFG math teacher as your "coach". **Now all that is left for you to do is earn the following five (or six for Honors Geometry) categories this summer:**

a. **Fractions**
b. **Rates and ratios**
c. **Exponents, radicals and scientific notation**
d. **Linear equations**
e. **Graphing points, equations and inequalities.**
f. **Quadratics (Honors Geometry students only)**

If you are currently performing at grade level, we anticipate that this will take you no more than a total of ten (10) hours.

There will be a very brief review of the summer assignment topics during the first week of class and then you will be formally evaluated on your knowledge of these topics. For college preparatory students, this exam will not count towards your grade. Still, if you are not able to pass the exam, then you will be obliged to spend your 2nd recesses at "Homework Club" practicing Algebra I material until you pass a re-take examination. For honors students, this exam will count as 10% of your first quarter grade. The prepared Honors Geometry student should easily score over 90% on such an exam.

If you have any questions, please email samantha.johnson@asfg.edu.mx or rhett.butler@asfg.edu.mx

Enjoy your summer and do your best!

Sincerely,

The ASFG Math Department

1. Go to http://www.khanacademy.org/ and click on the "Sign in with Google" button.
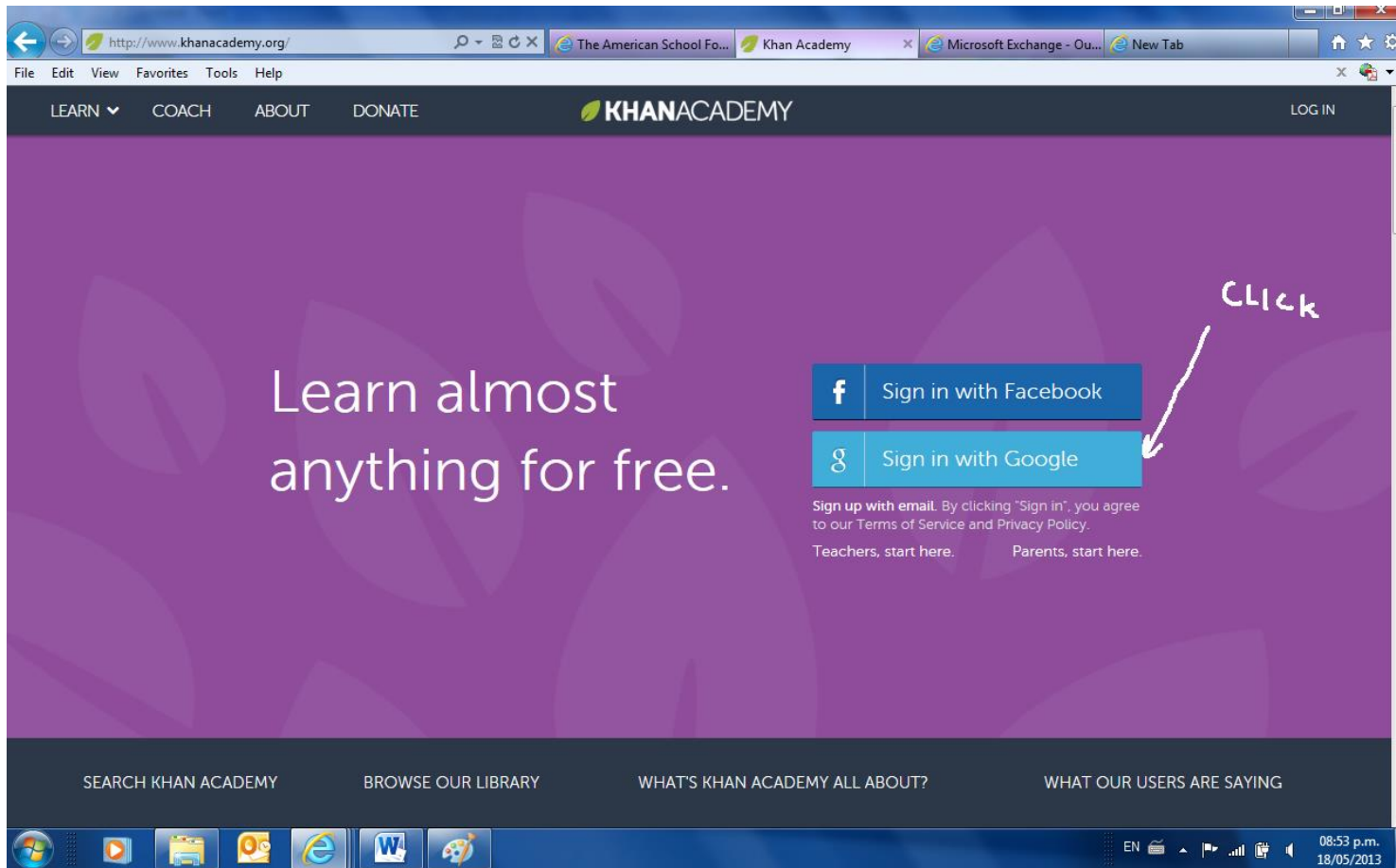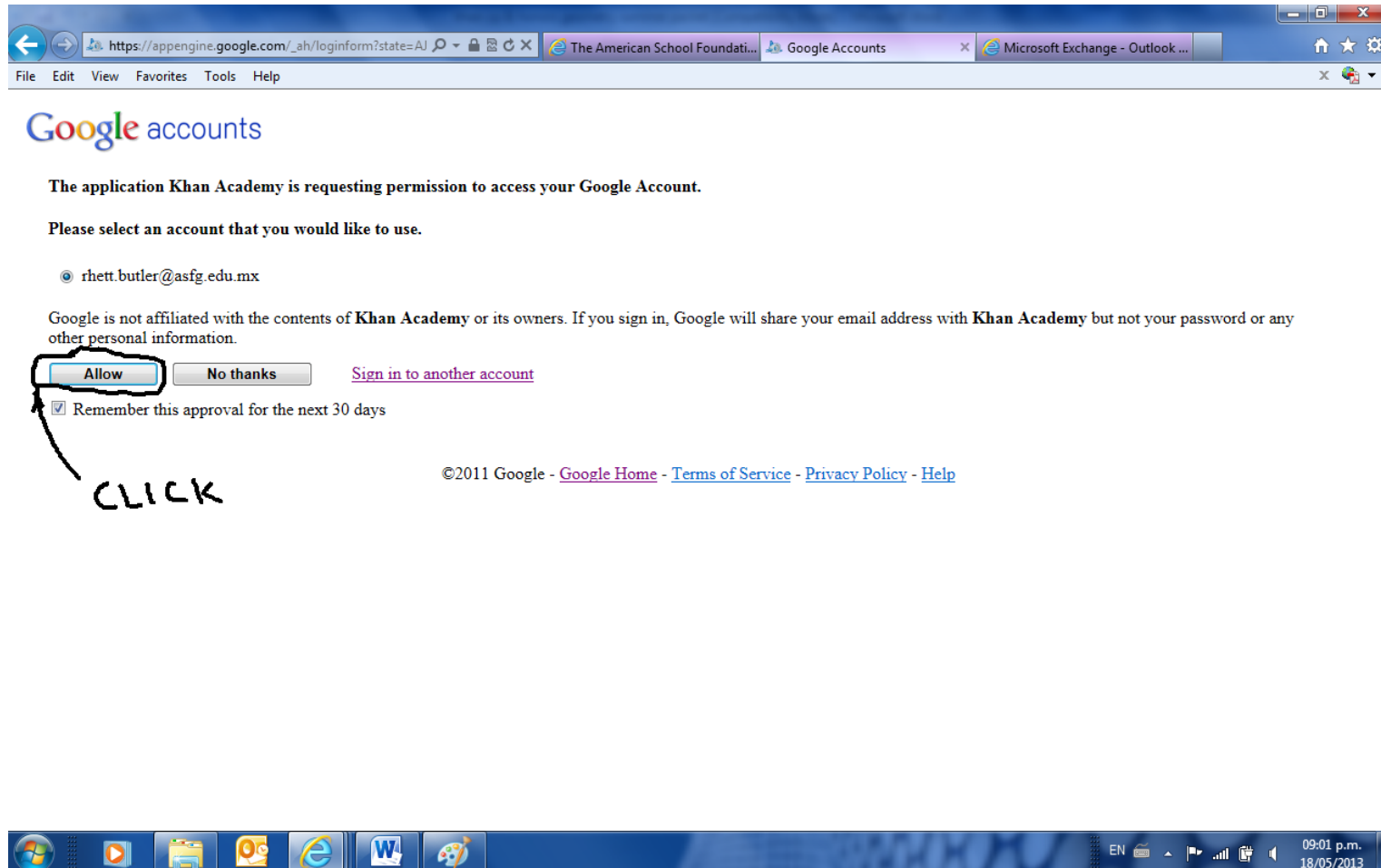
2. Enter your ASFG Google account username and password on the form provided.

3. Click the "Allow" button.

4. Click the "Coaches" button.

5. Enter "samantha.johnson@asfg.edu.mx" as your coach and click the "Join class" button.
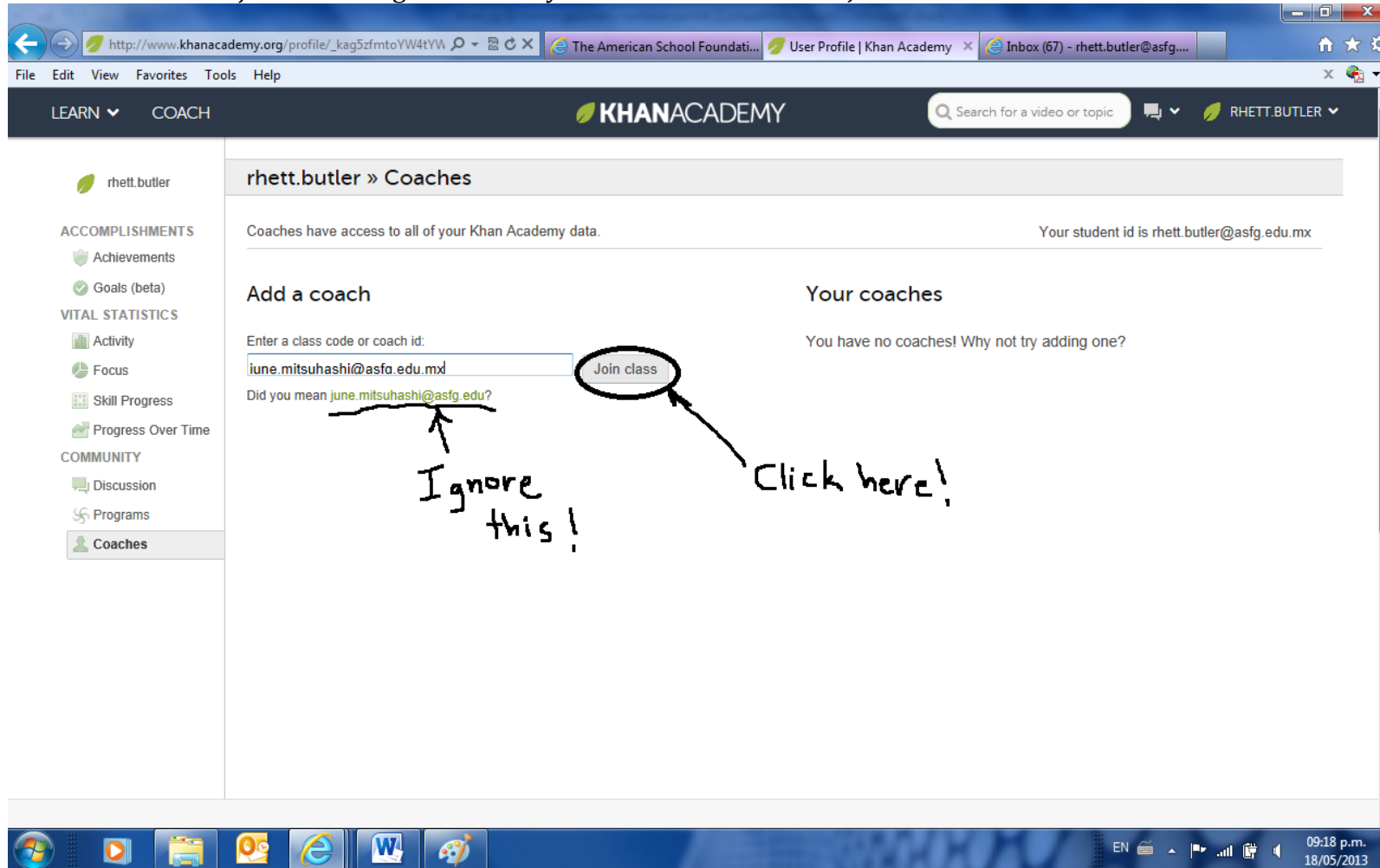
6. Make sure your coach is verified.

Add a coach

Enter a class code or coach id:

[   ] Join class

Did you mean june.mitsuhashi@aslg.edu/?

Your coaches

(june.mitsuhashi@aslg.edu.mx)   Remove

Coach
verified

dashboard

7. Under the "Learn" tab, go to Math, then Arithmetic and Pre-Algebra

8. You will see a menu like this.

9. From this menu, click on the following topics and complete the assignments listed:

      Hint: the assignments have stars next to them. Follow steps 10 and 11 to see how.
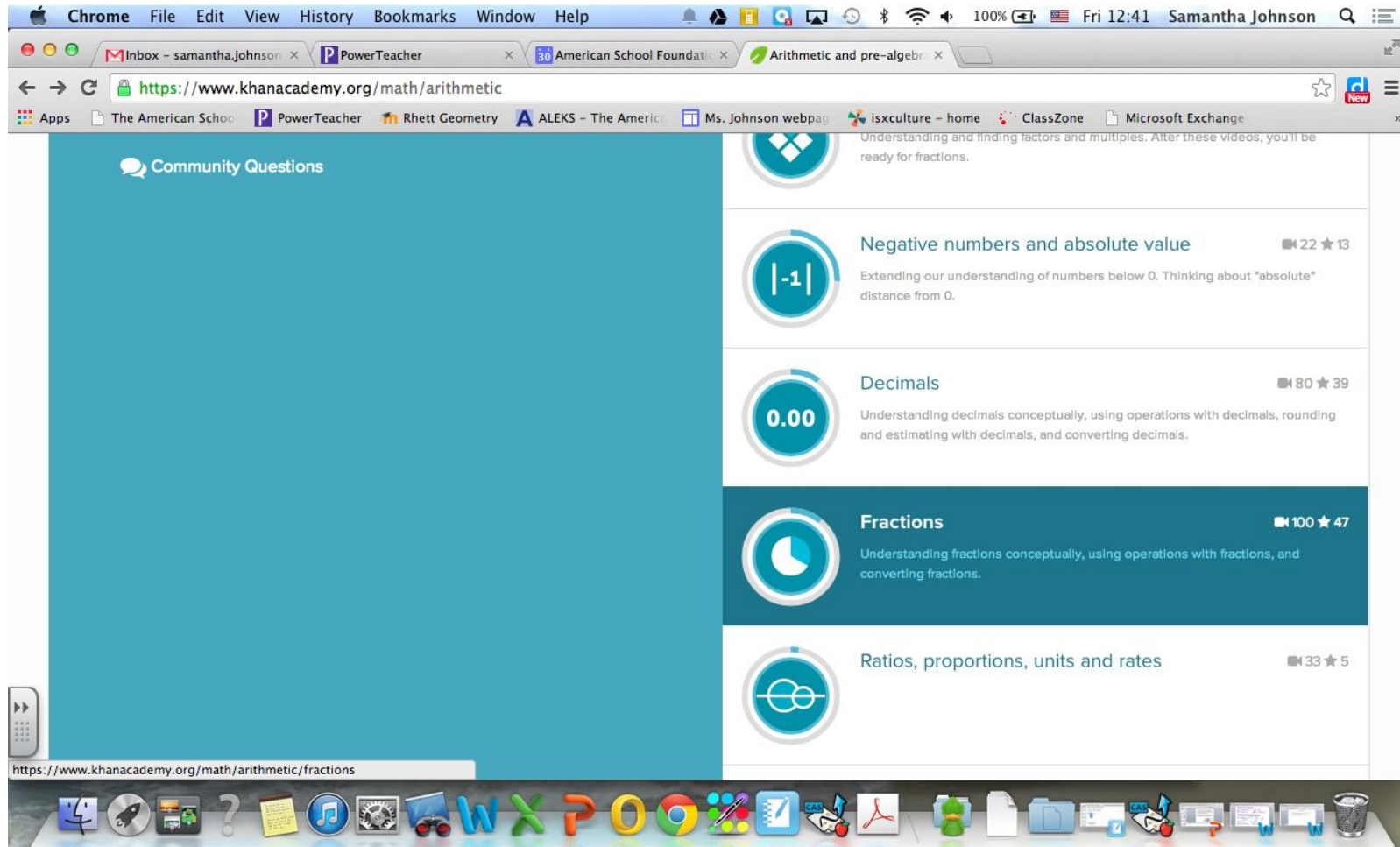
- FRACTIONS
    - *"Simplifying fractions"*
    - *"Comparing fractions 2"*
    - *"Adding and subtracting fractions"*
    - *"Adding and subtracting mixed numbers 1"*
    - *"Multiplying mixed numbers"*

- RATIONS, PROPORTIONS, UNITS, AND RATES
    - *"Ratio word problems"*
    - *"Rate problems 2"*
    - *"Units"*

- EXPONENTS, RADICALS, AND SCIENTIFIC NOTATION
    - *"Positive and zero exponents of integers"*
    - *"Adding and subtracting radicals"*
    - *"Cube roots"*
    - *"Scientific notation"*
    - *"Computing in scientific notation"*

10. For example, first click on "Fractions"

11. Then, scroll down and click on "*simplifying fractions*"

12. Once you have completed the three categories in "Arithmetic and Pre-Algebra", go back to the "Learn" tab, go to math, and now click "Algebra 1"

13. From this menu, click on the following topics and complete the assignments listed:

- LINEAR EQUATIONS:
    - *"Constructing and solving equations in the real world 1"*
    - *"2-Step equations"*
    - *"Equations with variables on both sides"*
    - *"Solving equations in terms of a variable"*
    - *"Multi-step equations with distribution"*

- GRAPHING AND ANALYZING LINEAR FUNCTIONS:
    - *"Points on the coordinate plane"*
    - *"Graphing linear equations"*
    - *"Graphing and solving linear inequalities"*

- EXPONENT EXPRESSIONS AND EQUATIONS:
    - *"Evaluating expressions with exponents"*
    - *"Simplifying rational expressions with exponent properties"*
    - *"Radical equations"*

- RATIOS AND PROPORTIONS:
    - *"Proportions 1"*
    - *"Constructing proportions to solve application problems"*
    - *"Writing proportions"*

- QUADRATIC EQUATIONS: Honors Geometry Only
    - *"Solving quadratics by taking the square root"*
    - *"Solving quadratics by factoring"*
    - *"Solving quadratics by completing the square 1"*
    - *"Graphing parabolas in standard form"*

14. The best study routine during the summer months is to constantly review topics and do a few exercises each day. Do not attempt to do the entire program the day before school starts.

15. You should <u>not</u> use a calculator to do these exercises unless the instructions explicitly permit you to do so.

16. GOOD LUCK! We look forward to meeting you in the fall.