Math Classes

Course Information

June 2020

info@LiftoffLearning.net | 832-350-8639 | www.LiftoffLearning.net

COURSES

Algebra 1 : Make easing into algebra a pleasurable mathematical success by learning from an author (and a teacher!) who loves math. *Elementary Algebra* by Harold Jacobs begins moving students from the concrete world of arithmetic into the abstract concepts of variables with clever number puzzles. Once there, Jacobs steadily develops all the necessary algebraic skills in intriguing ways, but always with a solid and rigorous mathematical foundation. During class, students build on Jacobs' unique and interesting problem sets with graphing calculator activities and interactive discussions of weekly "launch attempt" algebra problems. Supplementary review problems and algebra 1 level ACT/SAT types of problems are incorporated into the homework and discussion. As time allows, additional short units are included on introductory probability and statistics topics with enjoyable hands-on activities to support standardized testing needs and more real-world applications. Honors students address advanced problems and topics along with additional ACT/SAT problems in the weekly "honors delta" time.

Prerequisites: Acceptable completion of untimed, open-book, informal placement test.

Level, Schedule, Credit, Size: For grades 7 – 10. Class meets 2 times a week with regular and honors students together; honors students meet an extra ½ hour for advanced topics:

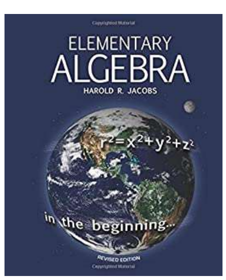
Part 1: Wed 9:00 – 10:00 All Students (to 10:30 for Honors Delta) - Online AND
Part 2: Fri 9:00 – 10:30 All Students – Hybrid (Online & In-Person Simultaneously - Post coronavirus)

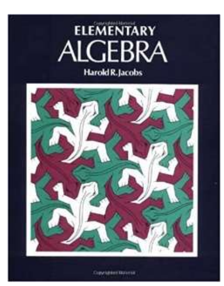
Students earn 1 high school credit. Class is limited to 12 students.

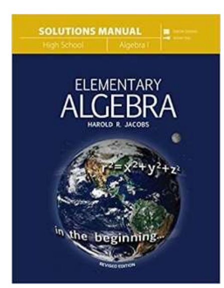
Homework Expectations & Grades: Approximately 1 to 2 hours of homework per day, 3-4 days a week is assigned for efforts outside of class. Before the course begins, students participate in the "Launch Readiness Week" to verify electronic tools are working. Students also complete "Warm Up" assignments in preparation for the first class. Grade is based on a combination of homework/participation, weekly quizzes done outside class, and unit tests.

Required Textbook/Supplies:

- *Elementary Algebra* – by Harold Jacobs. NOTE: While the newer MasterBooks edition of the textbook is preferred, the original Freeman version of the textbook is acceptable. The main difference is that the Set III problems were pulled out of the textbook for the new edition. So, page numbers of the versions are different, but we can work around this.
- *Solution's Manual* for problems – this is a MasterBooks edition that will not match the older edition in page #s but can be worked around.
- TI-84 calculator (either black or color edition)
- 3-ring binder and spiral notebook for homework







Item:	Newer Textbook	OR	Older Textbook	Solutions Guide
ISBN-13:	9780890519851		9780716710479	9780890519875
Publisher:	MasterBooks		Freeman	MasterBooks
Comments:	Preferred		Acceptable – Page #'s Different	

Geometry: With Jacobs' *Geometry*, you can both enjoy and understand math! Really! Using the well-liked and highly regarded geometry textbook by Harold Jacobs along with a variety of hands-on activities, students study Euclidean geometry, logically building from the most basic axioms to the complexities of geometric solids. Jacobs' presentation of geometry incorporates deductive reasoning applied to fascinating applications throughout history and across multiple disciplines. The text also incorporates Algebra 1 review problems to retain and reinforce previous skills. During class, students discuss such topics as solving problems in multiple ways, seeing the geometric relationships in a diagram, using the graphing calculator for geometry problems, and recognizing the beauty and elegance of key mathematical proofs. In the spring, students correlate their geometry knowledge to intriguing topics such as real-world tessellations and the mathematical art of MC Escher. Honors students address advanced problems/topics, additional geometric proofs, and challenging ACT/SAT math questions.

Prerequisites: Algebra 1 and acceptable completion of untimed, open-book, informal placement test.

Level, Schedule, Credit, Size: For grades 8 – 12. Class meets 2 times a week with regular and honors students together; honors students meet an extra ½ hour for advanced topics.

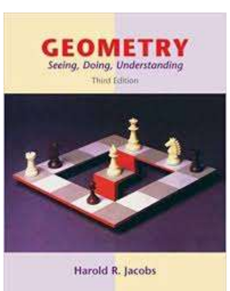
Part 1: Wed 1:00 – 2:30 All Students – Hybrid (Online & In-Person Simultaneously - Post coronavirus)
AND Part 2: Fri 1:00 – 2:00 All Students (to 2:30 for Honors Delta) - Online Only

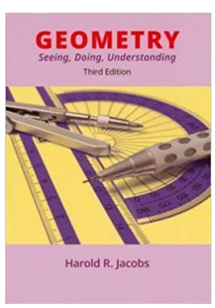
Students earn 1 high school credit. Class is limited to 12 students.

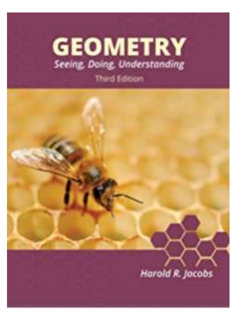
Homework Expectations & Grades: Approximately 1 to 2 hours of homework per day, 3-4 days a week is assigned for efforts outside of class. Before the course begins, students participate in the "Launch Readiness Week" to verify electronic tools are working. Students also complete "Warm Up" math assignments in preparation for the first class. Grade is based on a combination of homework/participation, weekly quizzes done outside class, and unit tests.

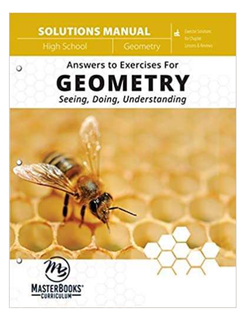
Required Textbook/Supplies:

- *Geometry: Seeing, Doing, Understanding* (3rd Edition) by Harold R. Jacobs. Any 3rd edition (see 3 books on the left below with 3 different covers) is fine. There are minor differences in primarily the pictures; pagination is consistent across versions. But, book must be THIRD edition.
- *Solutions Manual*
- Compass & protractor – recommended inexpensive set is Staedtler, but your own set is fine.
- Spiral binder of 4"x 6" index cards – see picture. Recommend you get 2. Any brand or color is fine.
- TI-84 calculator (either black or color edition)
- 3-ring binder and spiral notebook for homework









Item:	Textbook	OR Textbook	OR Textbook	AND Solutions Manual	Compass & Protractor
ISBN-13:	9780716743613	9781619991095	9781683440208	9781683440215	4"x6" spiral index cards
Edition:	Third	Third	Third		Office Depot Numbers:
Publisher:	Freeman	My Father's World	MasterBooks	MasterBooks	# 161967, 174326

Algebra 2: Studying types of functions, the heart of algebra 2, is much more meaningful when they are closely associated with practical uses - which is what author Paul Foerster does in his classic algebra 2 book. With attention to mathematical rigor, key function types are described via prose, represented algebraically, analyzed graphically, and implemented as interesting, relevant mathematical models to give them real-world meaning. During class, students use graphing calculators to explore each type of function more fully, analyze visually the effects different algebraic changes have on them, and interpret the meaning of those effects in a real-world setting. Simple programs are built and run within the TI-84 unit as well. Supplementary review problems and algebra 2 level ACT/SAT types of problems are incorporated into the homework, and weekly interactive "Launch Attempt" discussions are held to discuss challenging homework problems. Honors students address advanced problems and topics along with additional ACT/SAT problems in the weekly "honors delta" time. The course does not cover the trigonometry topics found at the end of the book, as those are typically covered in precalculus.

Prerequisites: Algebra 1, and preferably geometry as well, plus acceptable completion of untimed, open-book, informal placement test.

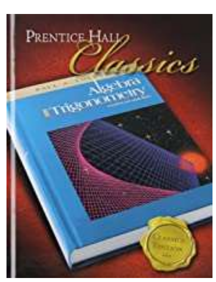
Level, Schedule, Credit, Size: For grades 9 – 12. Class meets 2 times a week with regular and honors students together; honors students meet an extra ½ hour for advanced topics.

Part 1: Tues 10:45 – 12:15 All Students – Hybrid (Online & In-Person Simultaneously - Post coronavirus)
AND Part 2: Fri 10:45 – 11:45 All Students (to 12:15 for Honors Delta) - Online Only

Students earn 1 high school credit. Class is limited to 12 students.

Homework Expectations & Grades: Approximately 1 to 2 hours of homework per day, 3-4 days a week is assigned for efforts outside of class. Before the course begins, students participate in the "Launch Readiness Week" to verify electronic tools are working. Students also complete "Warm Up" math assignments in preparation for the first class. Grade is based on a combination of homework/participation, weekly quizzes done outside class, and unit tests.

Textbook/Supplies:
- *Algebra & Trig* by Paul Foerster – Prentice Hall Classics Edition
- *Solutions Manual* - FYI - This manual is pricey for both new and used versions. The best deal I found is from Rainbow Resource. Alternatively, if you would prefer to rent a solutions manual from me for $20 for the school year, let me know.
- TI-84 calculator (either black or color edition)
- 3-ring binder and spiral notebook for homework



Item:	Textbook	Solutions Guide
ISBN-13:	9780131657106	9780201252866
Publisher:	Prentice Hall	Prentice Hall

COMPLIMENTARY SEMINARS

Using Digital Tools: Offered prior to the start of a course, students learn about the digital tools used at Liftoff Learning including OneNote, Zoom, and Canvas. Participants practice accessing and using various aspects of each tool and verifying that they are ready for classes to start. Any questions are answered, and any digital tool issues are resolved.

Using Career Cruising to Vector Your Future: Participants learn how to access, navigate, and utilize the various features within Career Cruising using their complimentary academic year accounts. Recommendations are presented on how to independently embark on career exploration for middle and high school students. Many aspects of self-inventories and career exploration can be done in students' own families. For those students/families wanting more guidance, the Careers class provides additional learning opportunities and extended discussion.

Writing Powerful College Application Essays: This seminar introduces the college application essay writing process, which most students find somewhat overwhelming. The purpose of the essay and the perspective of a typical admissions officer are discussed to ensure students understand the audience for the essay. The steps in the application essay writing process are highlighted with recommendations identified for each step. Example essays are analyzed and discussed. Inexpensive, helpful resources are identified.

WEEKLY SCHEDULE

Below is a summary of the schedule for the 3 math classes, including optional office hours.

* = Online until post coronavirus concerns, then switches to hybrid.

** = Office hours, for OPTIONAL additional student help/questions if needed, are subject to change based on students' schedules.

Math Class: Day:	Monday	Tuesday	Wednesday	Thursday	Friday
Algebra 1			Part 1: Online Only 9:00 – 10:00 All Students 10:00 – 10:30 Honors Delta		Part 2: Hybrid * 9:00 – 10:30 All Students
Geometry			Part 1: Hybrid * 1:00 – 2:30 All Students		Part 2: Online Only 1:00 – 2:00 All Students 2:00 – 2:30 Honors Delta
Algebra 2		Part 1: Hybrid * 10:45 – 12:15 All Students			Part 2: Online Only 10:45 – 11:45 All Students 11:45 – 12:15 Honors Delta
Office Hours **		2:00 – 3:00 Alg 1 Online Only 3:00 – 4:00 Geom Online Only	3:00 – 4:00 Alg 2 Online Only		

YEARLY ACADEMIC CALENDAR

Courses meet for 16 weeks each semester. The week before classes begin, "Launch Readiness Week" occurs. The semester ends with a flexibly scheduled review/final test week. See academic calendar link on website for more information

Major fall semester dates :

- July 1: Interested students/parents can request individual Zoom meetings to answer questions and discuss class "fit" for student. An informal placement test is provided for student to complete and return with the registration forms.
- July 12: Registration (entirely online) begins. Registered students are given information for installing and exploring the free electronic tools.
- August 12: Registration ENDS – NO LATE registrations. It is too difficult on the student, other classmates, and the teacher to incorporate late registered students lacking books and/or verified electronic capabilities.
- Aug 10 – Aug 14: LAUNCH READINESS WEEK! Complimentary online "Using Digital Tools" sessions offered (TBD days/times) to verify electronics are working well and to answer any questions. Students need to attend one 1.5-hour Zoom session and also complete "warm-up" assignments for the first class.
- August 18: Fall classes begin!
- December 18: Last day of fall classes! The last week of each semester is a schedule flexible review and final test week. No formal classes are held, but extended office hours are available for student questions.
- RESERVE Weeks: In true NASA fashion, and due to many lessons learned the last several years, the semester calendar automatically includes "reserve" schedule weeks: 1 week for the fall and 2 for the spring. So, while there are 16 weeks of classes, there are 17 available school weeks (excluding holiday weeks) in the fall calendar and 18 in the spring calendar. These reserve weeks are included in anticipation of unexpected events such as power outages, storm evacuations, teacher illness, etc.
- UNUSED RESERVE Weeks: If reserve weeks are not needed, the semester ends 1 to 2 weeks earlier than planned. (Snow days at the end of the semester! 😊)

COST

All courses are $740 with no other fees. Payment is due at registration and may be paid on a semester basis for no additional fee. Complimentary seminars are free for Liftoff Learning students. See registration and policies PDF on the website for more information.

REGISTRATION & PAYMENT

Registration closes one week before a class starts. No late registrations. Payment can be made online using Google Pay or via snail mail with personal check. See the registration and policies PDF file at www.LiftoffLearning.net/college/ for more information on steps to register for a course.

LIFTOFF LEARNING
Tutoring, Math Classes, and Vectoring for College