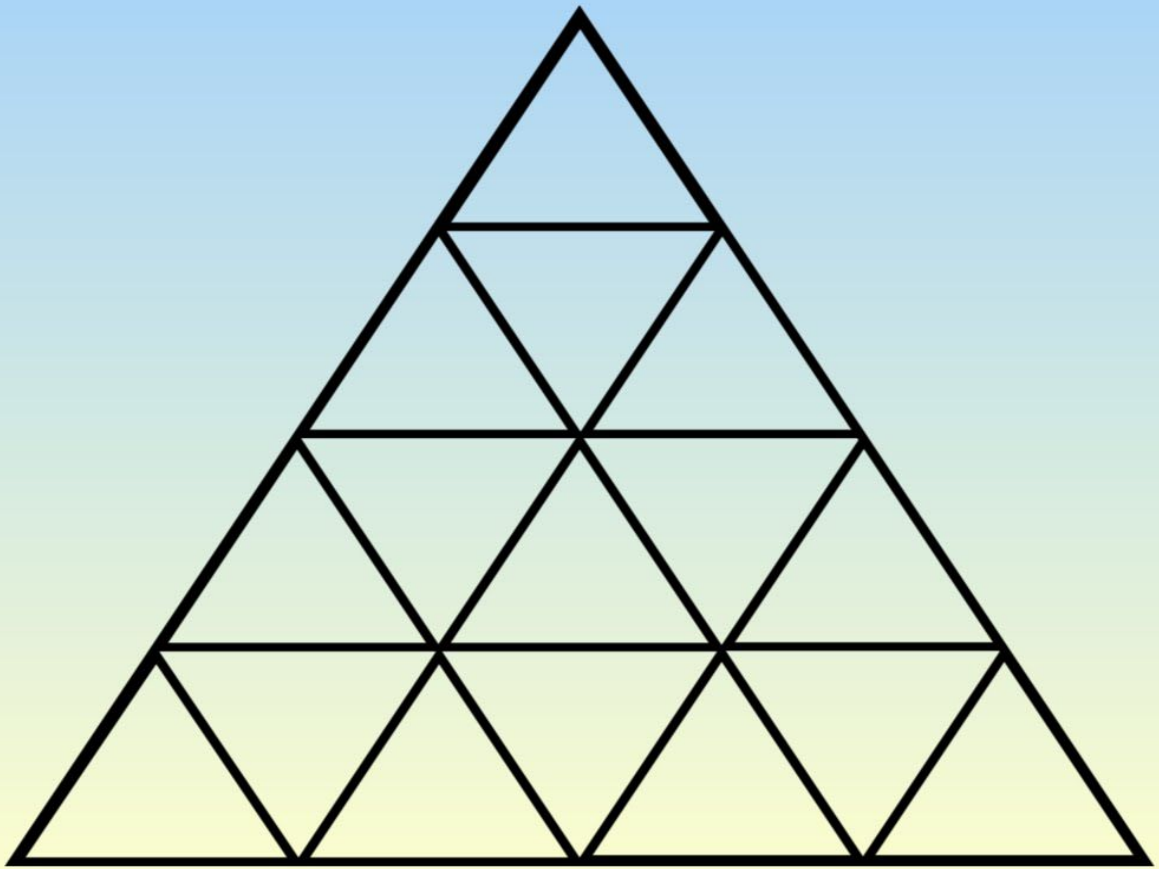
HOW MANY TRIANGLES DO YOU SEE?



Parent's Night 2021

Welcome!

Mathematics Department Presentation

Mathematics Department:

Robert Callahan

Jonathan Graham

Laurin Harvey

Sam Harvey

Jaclyn LeRoy

Jodie Murphy

David Reynolds

Andrei Safontchik

Mary Silk

Barbara Whitney

Classroom Expectations

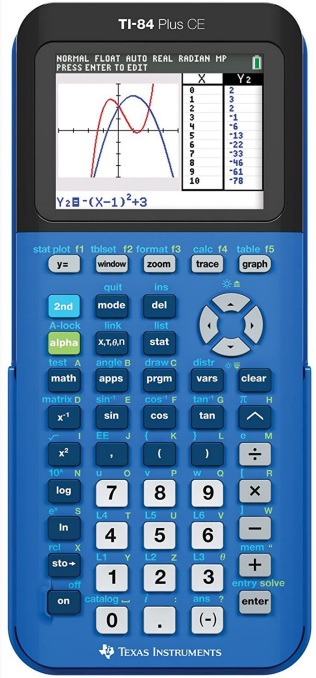
- Arrive promptly with required materials
- Respect yourself and others
- Participate actively
- Monitor your assignments via Google Classroom / Aspen

Skills Students are working on in Class

- Problem Solving Skills
- Self-Reflection
- Monitoring Progress
- Self-Advocacy / Independence
- Collaboration & Group Work
- Growth Mindset
- Real-world Applications
- Communicating Process and Reasoning

Technology

- Chromebooks (and Chargers!)
- Resources



Department Goals:

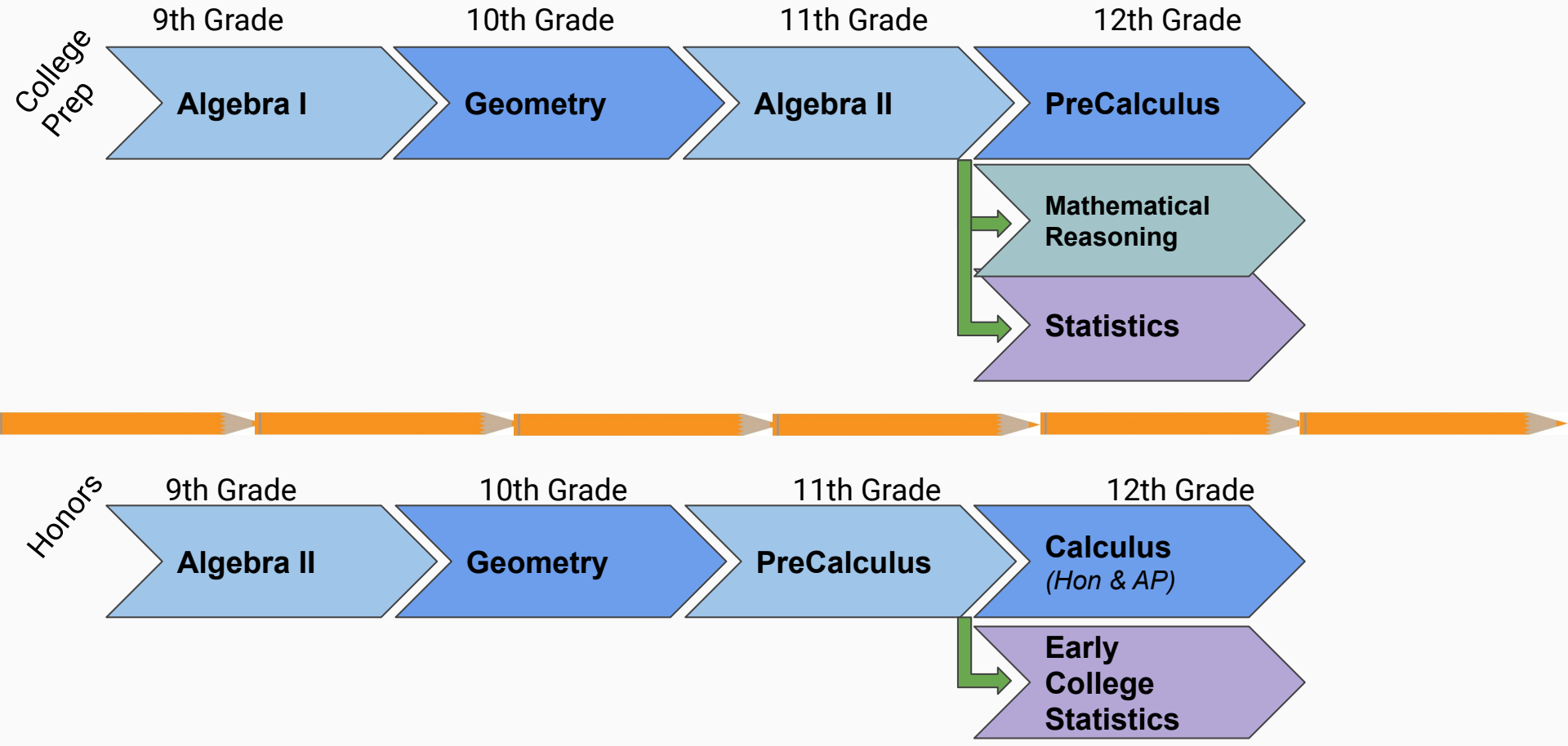
Students will:

- build on prior knowledge of math concepts.
- focus on multiple ways of solving problems.
- use a variety of organizational tools to support learning.
- practice for MCAS, SAT, and beyond.

Course Levels:

- College Prep
- Honors
  - Advanced Placement
  - Early College

Course Progressions



Freshmen Course Offerings:

Algebra I

- Deepen and extend understanding of linear and exponential relationships
- Contrast linear and exponential relationships with each other and engage in methods for analyzing, solving, and using quadratic functions
- Extend the laws of exponents to square and cube roots
- Apply linear models to data that exhibit a linear trend

Algebra I Honors: focusing on furthering the connection between functions and their applications with real world scenarios and build on skills…….

Algebra II Honors*

- Relate arithmetic of rational expressions to arithmetic of rational numbers
- Expand understandings of functions and graphing to include trigonometric functions
- Synthesize and generalize functions and extend understanding of exponential functions to logarithmic functions
- Relate data display and summary statistics to probability and explore a variety of data collection methods.

**Pre-requisite: Placement based on placement testing & teacher recommendation*

Sophomore Course Offerings

Geometry/ Geometry Honors

- **Establish criteria for congruence of triangles based on rigid motions**
- **Establish criteria for similarity of triangles based on dilations and proportional reasoning**
- **Informally develop explanations of circumference, area, and volume formulas**
- **Apply the Pythagorean Theorem to the coordinate plane**
- **Prove basic geometric theorems**
- **Extend work with probability.**
- ***Prepare for successful MCAS testing***

Junior Course Offerings

Algebra II

- **Relate arithmetic of rational expressions to arithmetic of rational numbers;**
- **Expand understandings of functions and graphing to include trigonometric functions;**
- **Synthesize and generalize functions and extend understanding of exponential functions to logarithmic functions**
- **Relate data display and summary statistics to probability and explore a variety of data collection methods.**

Pre-Calculus Honors* is designed to prepare the student for college-level Calculus.

- **Extend work with complex numbers**
- **Expand understanding of logarithms and exponential functions as well as trigonometric techniques**
- **Use characteristics of polynomial and rational functions to sketch graphs of those functions**
- **Perform operations with vectors**

**Pre-requisite: Successful completion of Algebra II Honors and Geometry.*

Senior Course Offerings

Pre-Calculus is designed to prepare the student for college-level Calculus or other coursework.

- Extend work with complex numbers
- Expand understanding of logarithms and exponential functions as well as trigonometric techniques
- Use characteristics of polynomial and rational functions to sketch graphs of those functions
- Perform operations with vectors

**Pre-requisite: Successful completion of Algebra II and Geometry.*

Calculus (Honors & Advanced Placement ®)

- Conceptualize change over an interval and instantaneously
- Represent concepts and solutions geometrically, numerically, analytically, and verbally.
- Focus on Derivatives & Integrals.

**Prerequisite: Successful completion of Pre-Calculus.*

AP Calculus follows the level of theory and rigor prescribed by the Advanced Placement Program of the College Board. Same topics are covered as in the Calculus course with a deeper and more comprehensive understanding of concepts. Additional expectations include completion of practice problems from previously administered Advanced Placement Calculus AB Exams. Students enrolled in Advanced Placement Calculus AB® are prepared to take the Advanced Placement Calculus AB® Exam. This allows students the opportunity to earn college credit or advanced standing at most of the nation's colleges and universities.

Statistics

- Explore concepts and tools for collecting, analyzing, and drawing conclusions from data.
- Develop analytical and critical thinking skills regarding data patterns and departures from patterns
- Plan and conduct studies, use probability and simulation to explore random phenomena, estimate population parameters, test hypotheses, and make statistical inferences.

- *Students enrolled in the Early College program through Middlesex Community College earn 3 credits. This comes with the expectation that these students will cover the basic concepts with greater rigor, and will master more complex skills. (The Middlesex credits qualify for the Mass Transfer credit, which guarantees credit transfer to Massachusetts state universities and the UMass colleges.)*

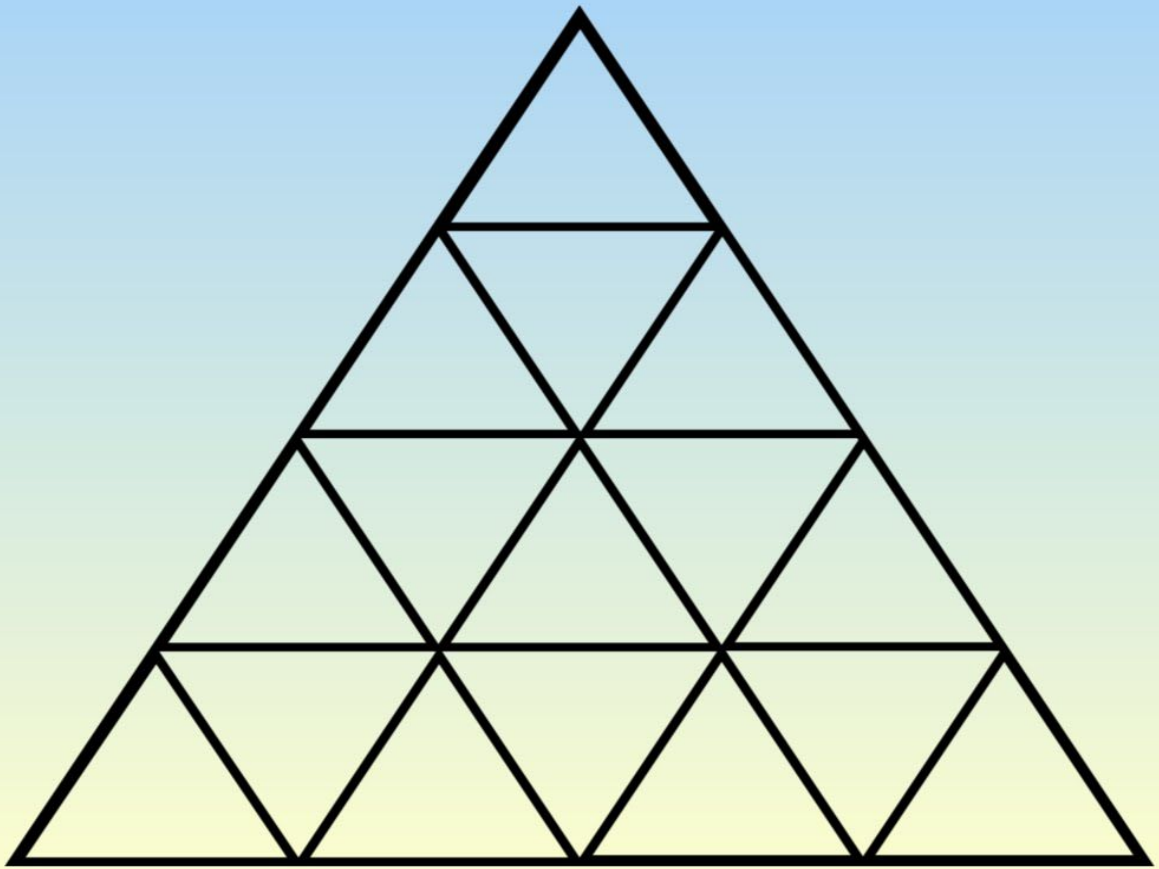
Extra Help

Tuesday and Thursday*

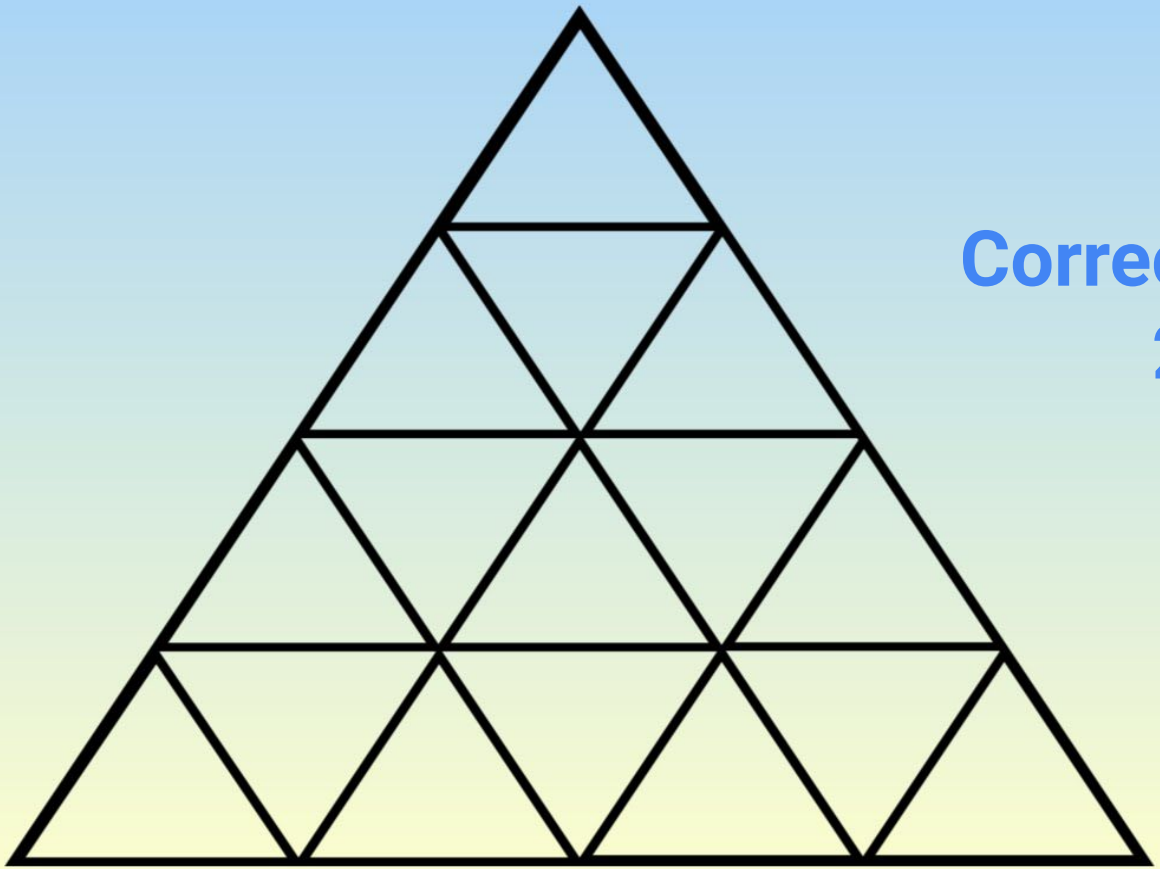
2:35 - 3:30

Sign up the day prior, buses provided upon request

HOW MANY TRIANGLES DO YOU SEE?



HOW MANY TRIANGLES DO YOU SEE?



Correct answer:
27 triangles