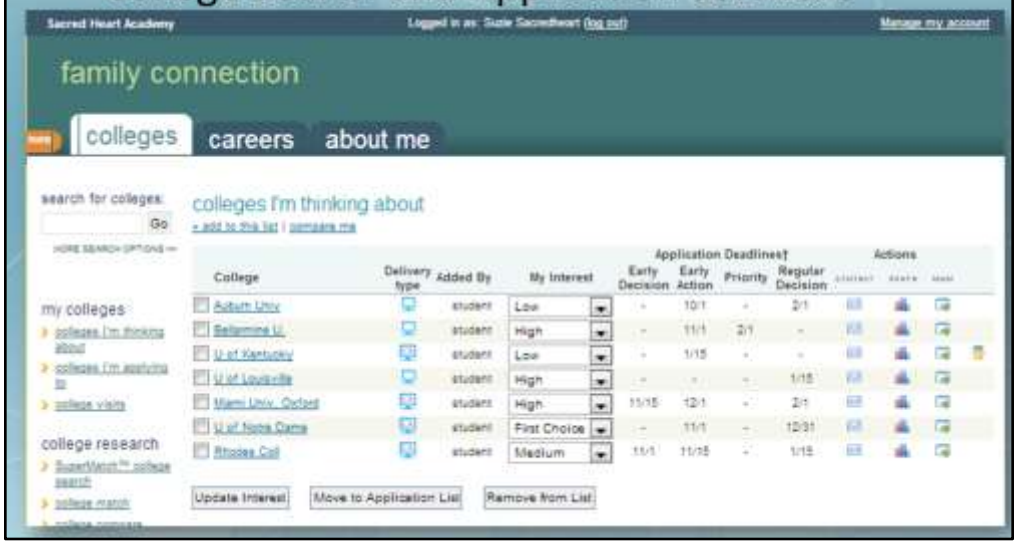
Using Naviance in the STEM Classroom

What is Naviance?

- College Search and Application software



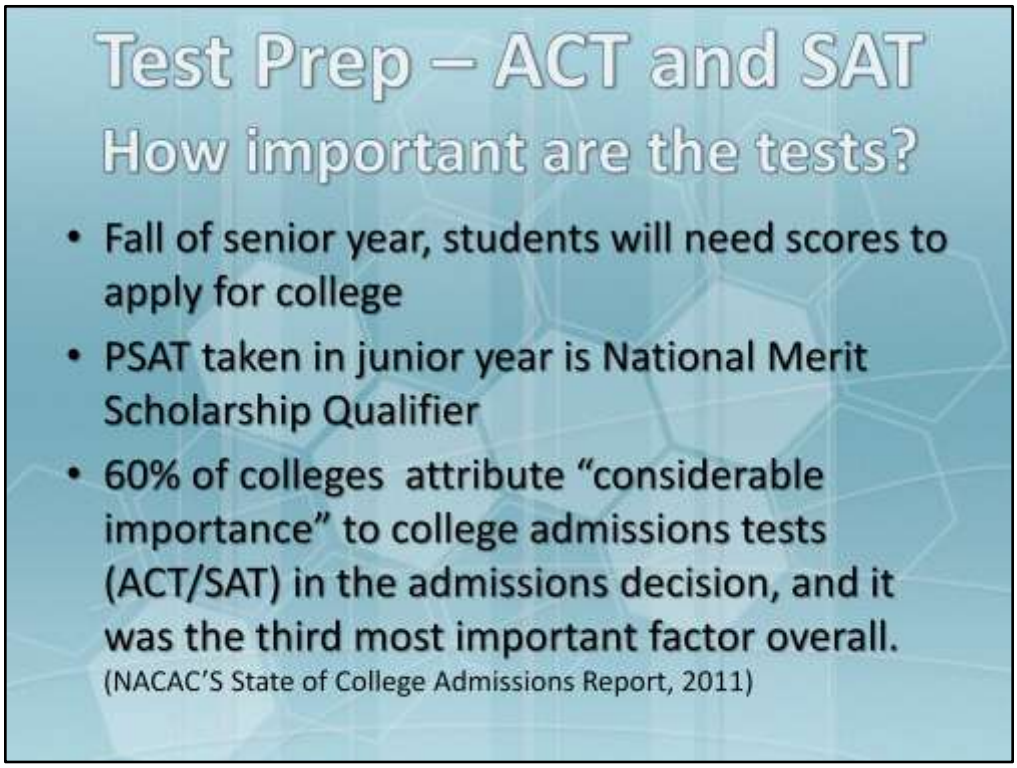
Method Test Prep- Intro

In-depth coverage of all SAT and ACT sections

- SAT
  - Math: algebra I/II, geometry, logical reasoning
  - Critical Reading: vocabulary, passage-based reading
  - Writing: grammar
- ACT
  - English: grammar and rhetorical skills
  - Math: algebra I/II, geometry, logical reasoning, trigonometry
  - Reading: passage-based comprehension
  - Science: inference, logical reasoning

Method Test Prep- Intro

- Manageable, resource-rich material
  - Short, focused, engaging tasks
    - Lessons, quizzes, vocabulary builder
  - Evaluations and full-length exams
  - Audio and video problem explanations
  - On-demand, student/teacher-created and assigned quizzes
- Organization and metrics tools for instructors/administrators
  - Progress monitoring at class, student, and conceptual levels



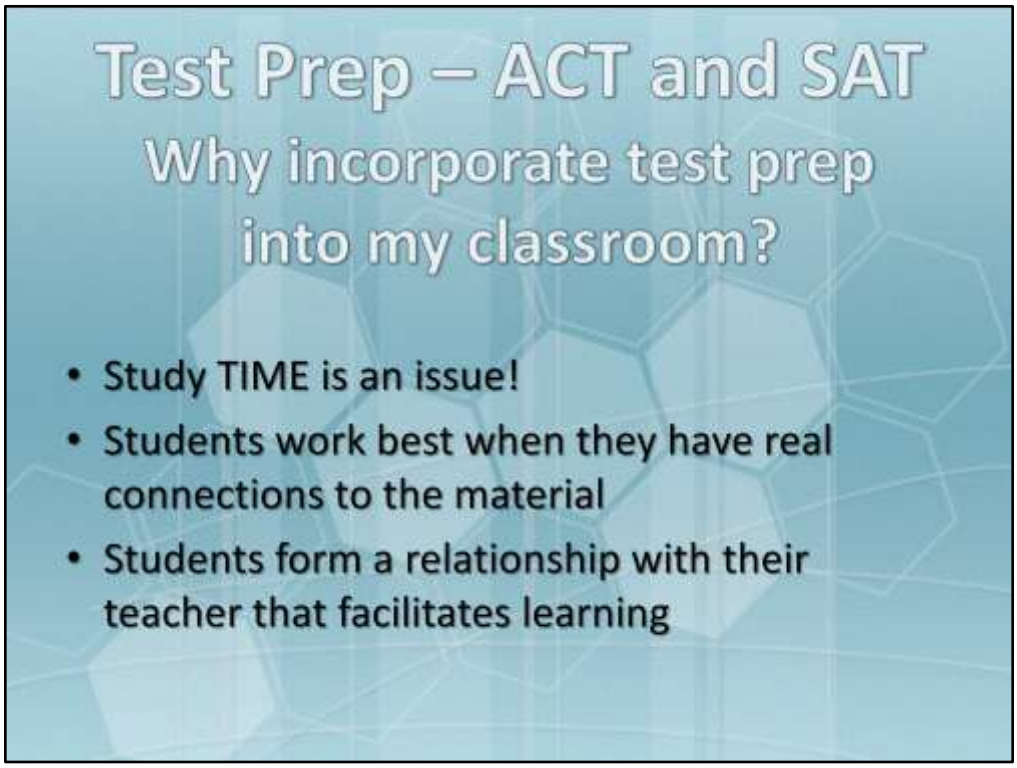
The College Counselors strongly suggest that juniors take two standardized tests during junior year. An ACT and SAT and or two ACT tests. Depending on scores, you may then be finished with testing.

Scheduling

- Content should be spread out over time
  - Gradual progress rather than cramming
  - Factor in school breaks/holidays

Test & Date	Recommended Start Month
November SAT	Sep
January SAT	Oct-Nov
March SAT	Dec-Jan
April ACT	Jan-Feb
May SAT	Mar
June SAT/June ACT	Apr

- Recommendation: two standardized tests in junior year
- Practice tests such as the EXPLORE and PLAN may start as soon as 8th or 9th grade



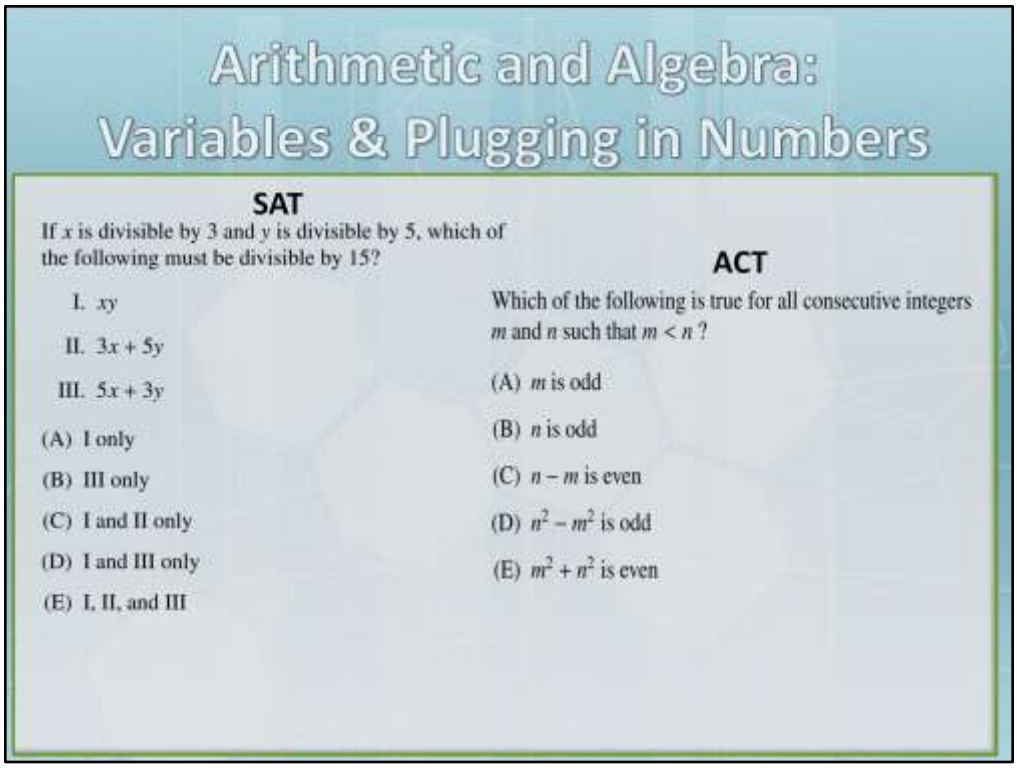
- One of the biggest reasons that students don't prepare for the ACT or SAT is because they don't have the time. Setting aside time for studying is essential to scoring well. However, in addition to good scores, students need top grades and well-rounded student resume that requires plenty of extracurricular activities.

- In order for students to really learn, they need to form a connection to their work. A teacher-led online course gives students this connection to a human at the other end of the computer, and thus they are less likely to get lost in cyberspace.

- Students form a relationship with their teacher and have a picture of them in their minds and hear their voices, even while working remotely. They can then use this picture and voice of their teacher to develop the capacity to follow through on completing assignments while they work independently outside of class time.

Math ACT Prep – what to study

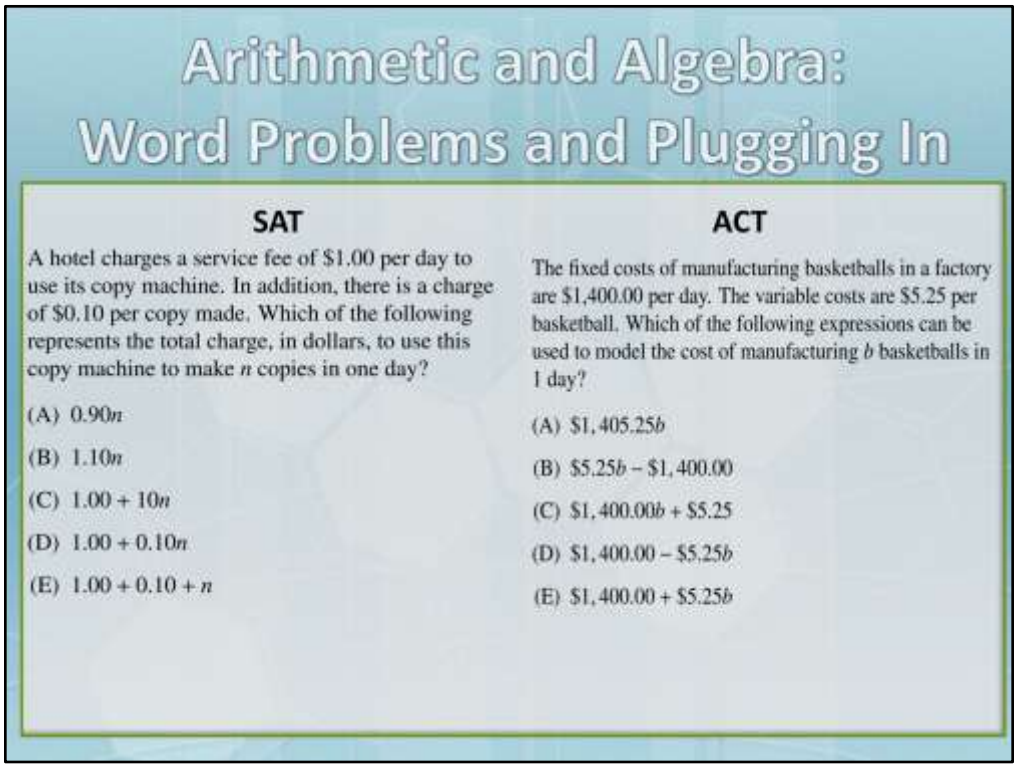
- Arithmetic and Algebra: Variables & Plugging in Numbers
- Arithmetic and Algebra: Word Problems and Plugging In
- Arithmetic and Algebra: Operations
- Arithmetic and Algebra: Strange Symbols
- Arithmetic and Algebra: Statistics and Probability
- Arithmetic and Algebra: Statistics and Probability
- Geometry: Circles, Angles, Area, Perimeter, Solids
- Coordinate Geometry
- Functions
- Algebra II: Logarithms, Matrices, Imaginary & Complex Numbers
- Trigonometry: Basic functions and calculations, Laws of sines/cosines, Unit circle



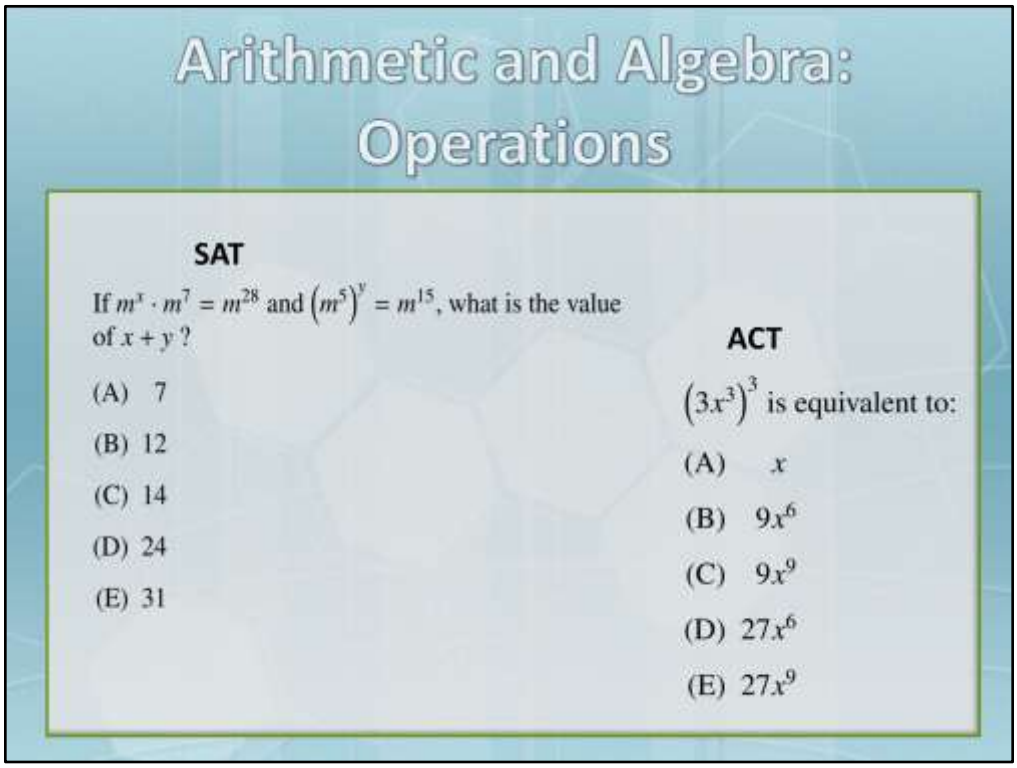
•**Strategy**: Plugging in Numbers – one of the most crucial techniques

•Both problems, while ranked "medium" difficulty, can be solved easily by substituting appropriate numbers for variables

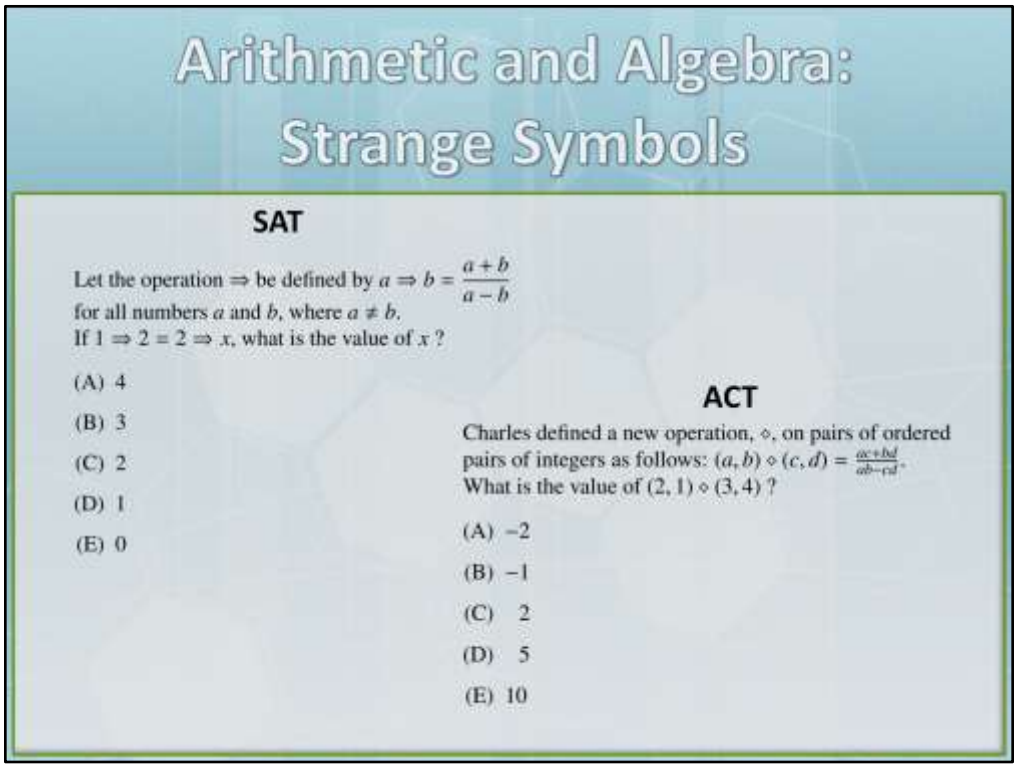
•Multi-case options are common on SAT, not on ACT



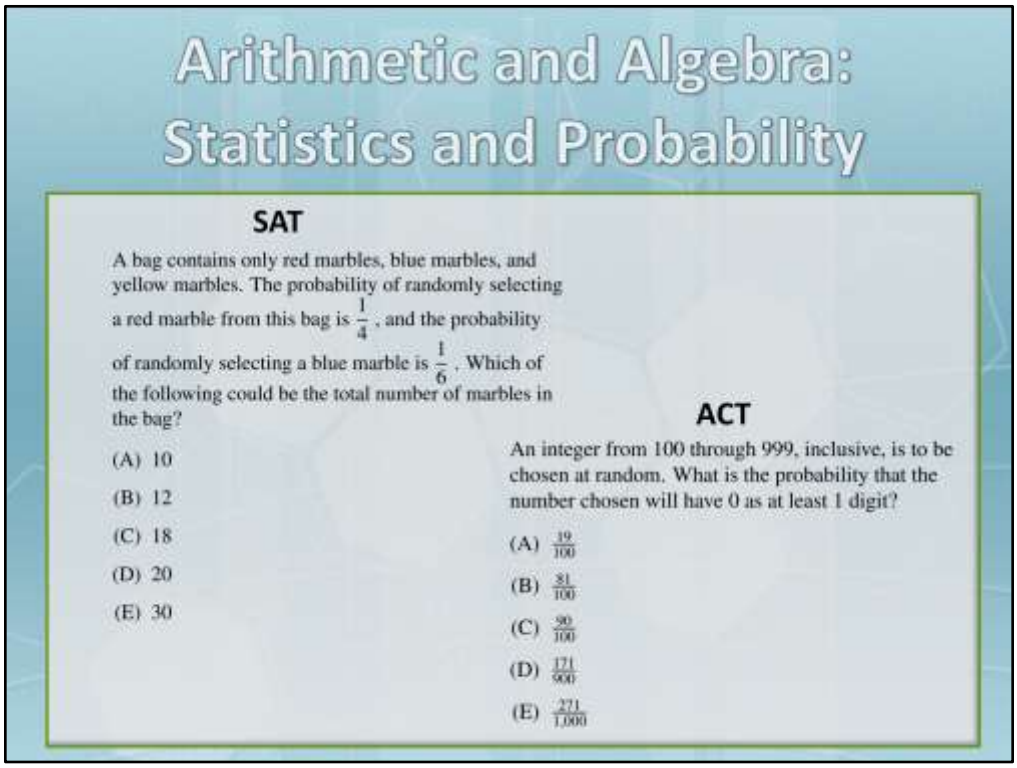
•**Strategy**: Plugging in Numbers for students with weaker algebraic reasoning skills
•"Easy" problems that should be givens for any student
•This kind of problem is common for SAT grid-in questions with definite numbers



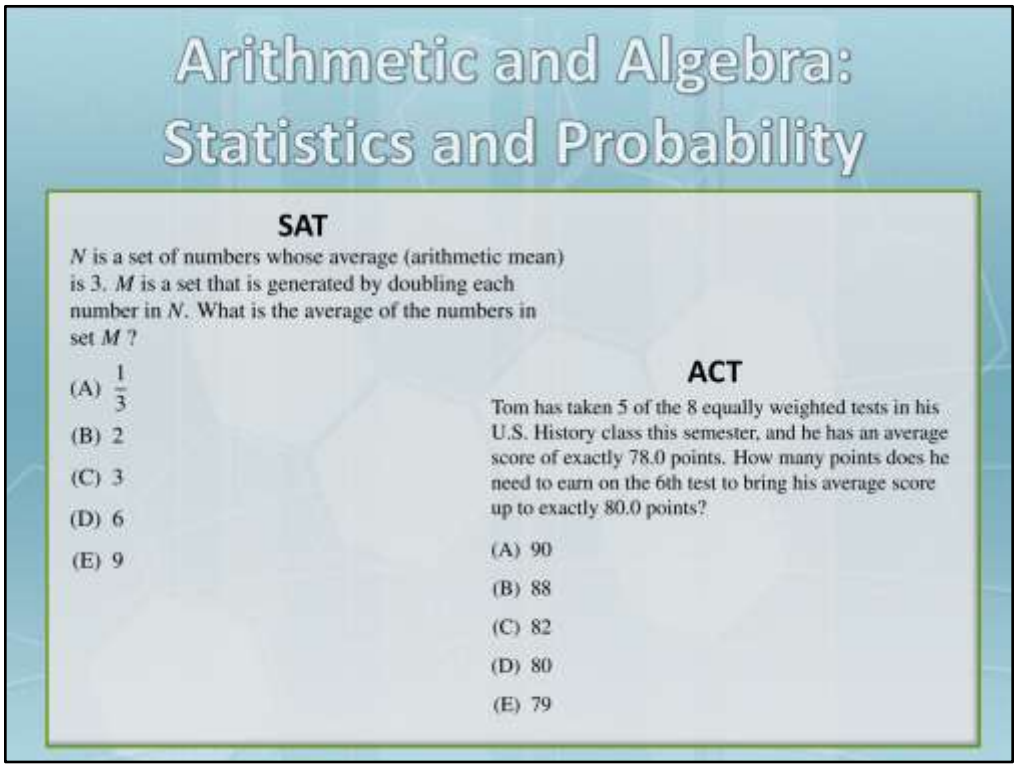
- ACT: straightforward – similar to quiz or homework problems
- SAT: problems require a combination of operations
- **Technique**: laws of exponents
- Exponents, FOIL & factoring, radicals & roots tested on both exams
  - **Strategy example**: <u>always</u> factor difference of perfect squares



- **Technique**: use position as guide.
  - Ex. The "stuff" on the left side of the arrow goes everywhere there is an *a* in the formula
- Emphasize similarity to functions
- Most students are thrown by "new" operations – they must know that all that is required is to follow directions



•**Technique**: stress that total # of elements must be multiple of denominator(s)
•"Part / Whole" concept employed in simple and difficult situations
•Independent events, dependent events ("without replacement" problems)



•**Technique**: students must write down the formula for arithmetic mean (Avg = sum of numbers / # of terms)

•**Strategy**: encourage students to create a small set of numbers to test when necessary (this is a very useful SAT strategy)

•**Strategy**: first, phrase everything in terms of the average equation; next, cross-multiply

Geometry: Circles

SAT

In the figure above, QR is the arc of a circle with center P. If the length of arc QR is 6π, what is the area of sector PQR?

(A) 108π

(B) 72π

(C) 54π

(D) 36π

(E) 9π

ACT

A circular pool cover shown above has a radius of 4 meters and has two notches located at points A and B. If the distance between the notches is π meters, what is the measure of the angle marked θ?

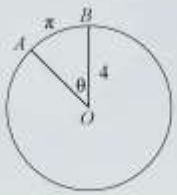
(A) 15°

(B) 30°

(C) 45°

(D) 60°

(E) 75°



•**Technique**: circle proportions and finding fractions of figures

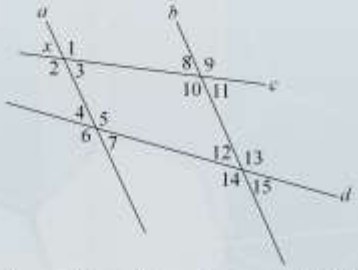
•Proportionality, application of formulas involved in both problems

Geometry: Angles

SAT

In the figure above, $m \parallel n$ and $y = 3x$. What is the value of y?

ACT



Lines a, b, c, and d are shown above and $a \parallel b$. Which of the following is the set of all angles that *must* be supplementary to $\angle x$?

(A) {1, 2}

(B) {1, 2, 5, 6}

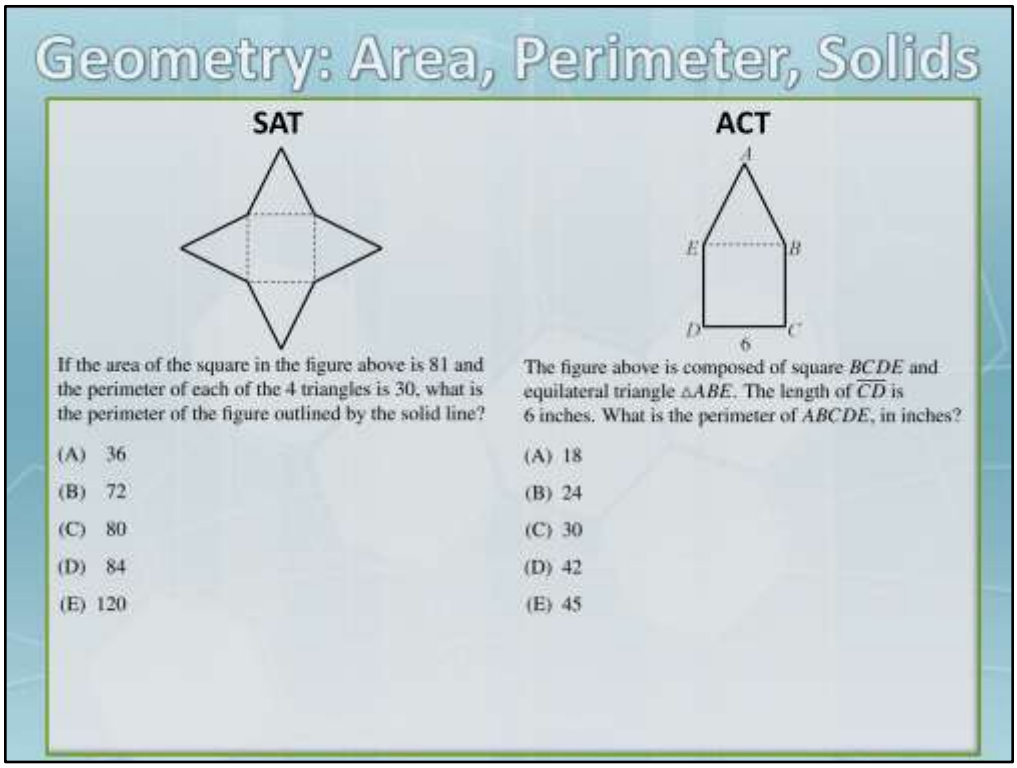
(C) {1, 2, 9, 10}

(D) {1, 2, 5, 6, 9, 10}

(E) {1, 2, 5, 6, 9, 10, 13, 14}

•Parallel line geometry: supplements, corresponding, alternate interior, vertical angles

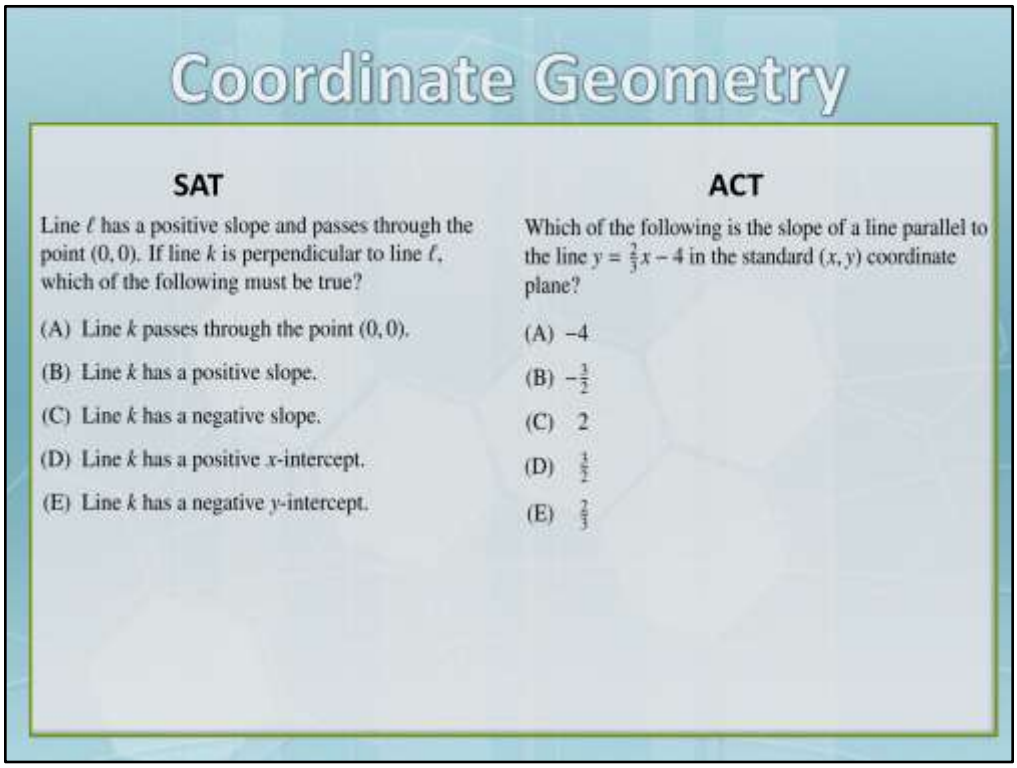
•Usually also appear in parallelograms and trapezoids (parallel sides/bases and supplementary consecutive angles)



•Students must integrate various principles of geometry in a single problem: area, perimeter, terminology: ACT more straightforward

•**Technique**: students MUST mark figure to maximum possible extent

•Common figures are quadrilaterals, right, isosceles, and equilateral triangles, circles, spheres, cubes, rectangular prisms

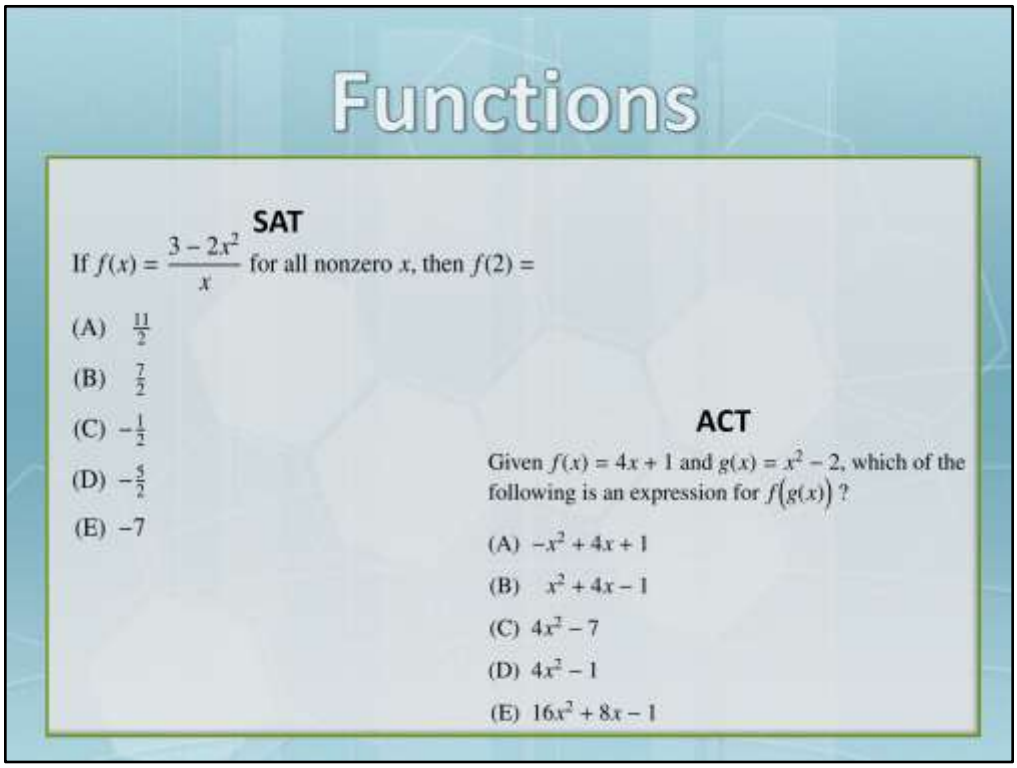


•Large emphasis on parallel/perpendicular slope relationships

•Substituting coordinates into equations to solve for unknown coordinates/slopes/intercepts

•Figures in the coordinate plane, especially circles and triangles

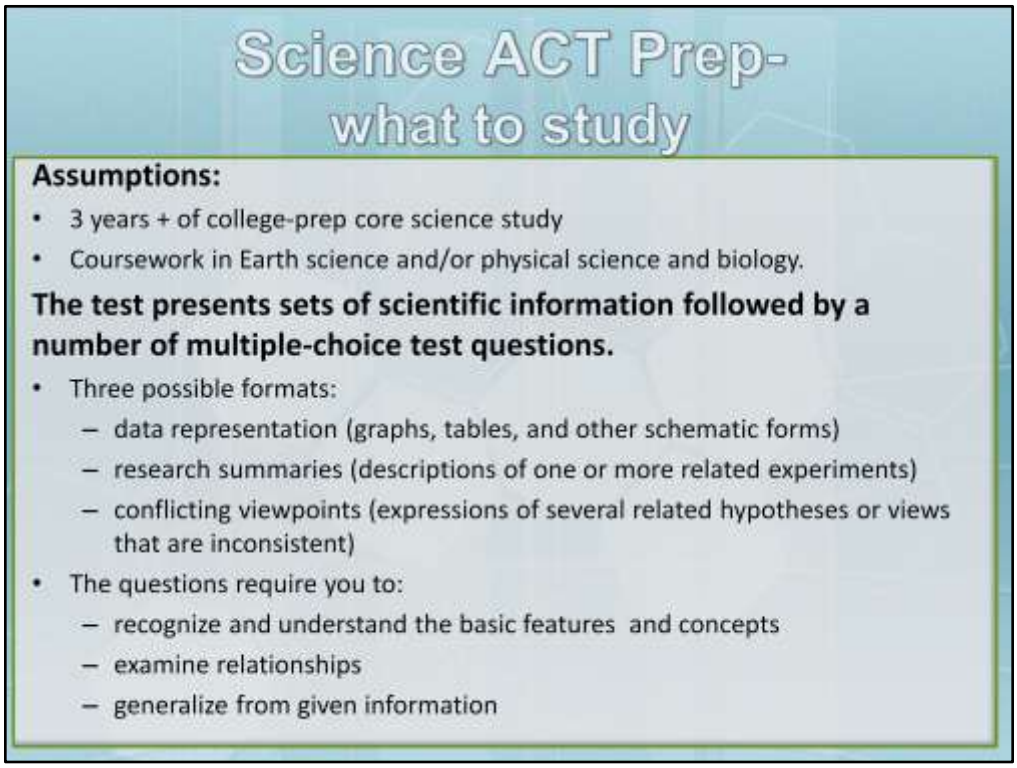
•**Technique**: students should be aware that if there is a question involving equations and points, they will need to plug coordinates into equations (students very typically forget they can do this)



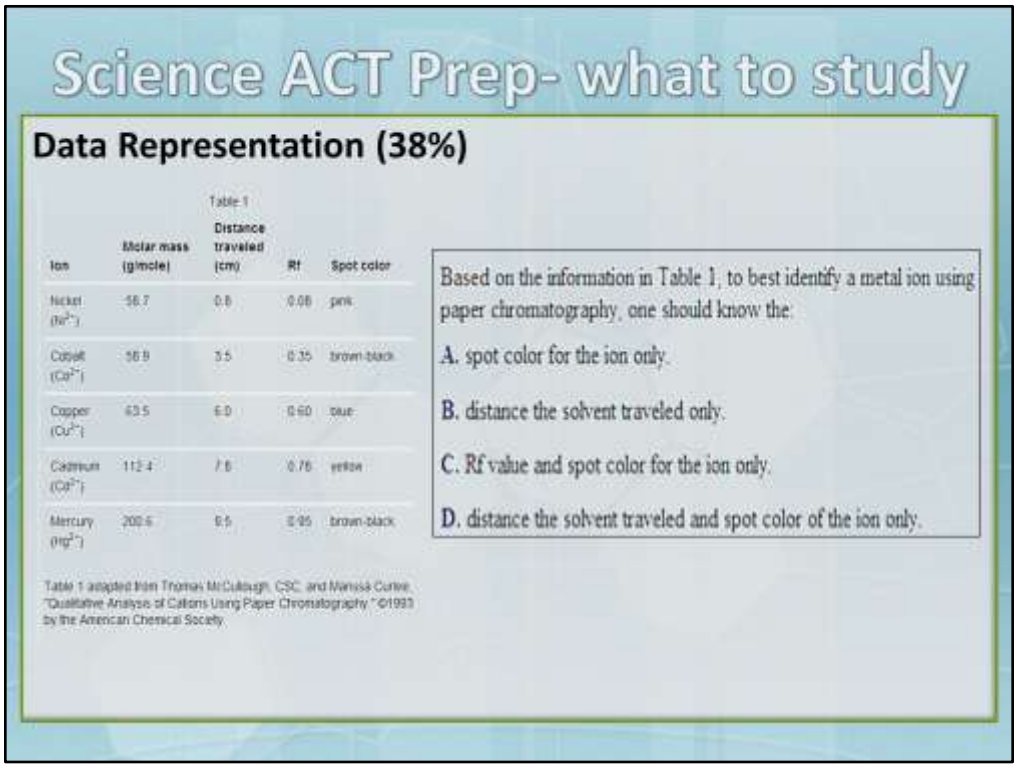
•SAT: understanding function notation & simple operations in both algebraic and graphical contexts (i.e. points, transformations)

•ACT: adds in composition of functions

•**Strategy**: make sure students know notation, understand that $y=f(x)$



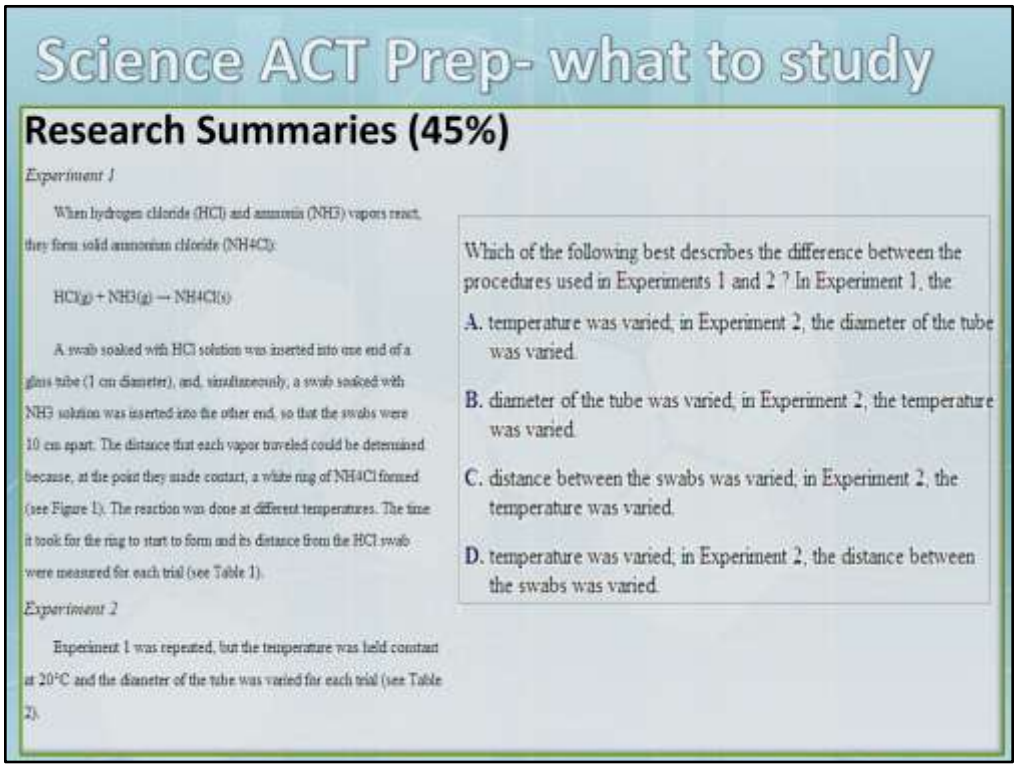
The content of the Science Test includes biology, chemistry, physics, and the Earth/space sciences (for example, geology, astronomy, and meteorology). Advanced knowledge in these subjects is not required, but background knowledge acquired in general, introductory science courses is needed to answer some of the questions. The test emphasizes **scientific reasoning skills** over recall of scientific content, skill in mathematics, or reading ability.



This format presents graphic and tabular material similar to that found in science journals and texts.

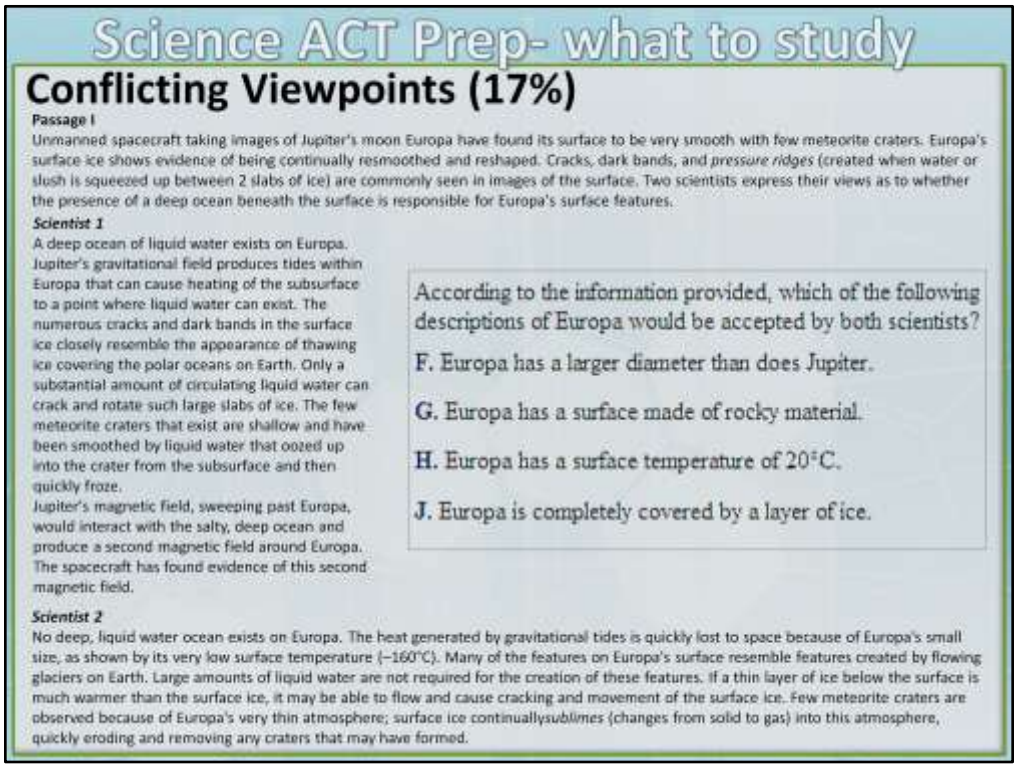
The questions associated with this format measure skills such as graph reading, interpretation of scatterplots, and interpretation of information presented in tables,

diagrams, and figures.



This format provides descriptions of one or more related experiments.

The questions focus on the design of experiments and the interpretation of experimental results.



This format presents expressions of several hypotheses or views that, being based on differing premises or on incomplete data, are inconsistent with one another.

The questions focus on the understanding, analysis, and comparison of alternative viewpoints or hypotheses.


SAT does NOT have a
Science Component

Why Method Test Prep?

- Prep for standardized tests is crucial
  - Predictability warrants preparation
- A course based on MTP's program will be:
  - User-friendly
  - Up-to-date, with high-quality material
  - Flexible for instructors and students
  - Results-oriented

With Method Test Prep students can:

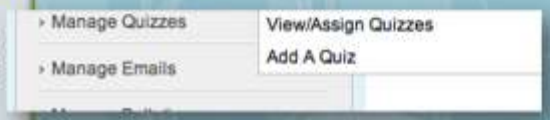
- Hear audio explanations of test questions
- Access strategy guides for each test
- Complete full-length practice tests
- Receive hundreds of practice questions
- Read easy explanations to every question
- Track their strengths on each test
- Receive valuable test-taking tips
- Take practice quizzes to boost their knowledge
- Access their courses on an unlimited, 24x7 basis, from any Web-enabled computer

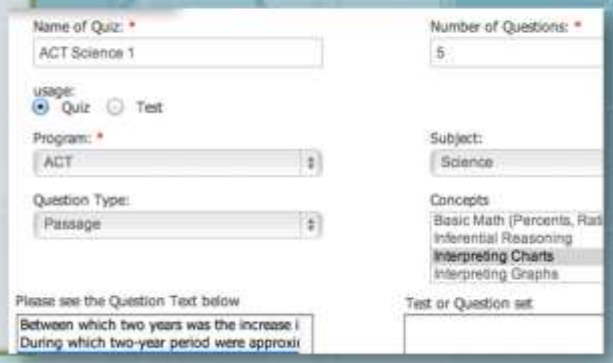
Method Test Prep

- **Student view**
  - Checklist
  - Practice Questions
  - Quizzes and Tests
  - Audio/Video Explanations
  - Seeing results/scores
- **Teacher view**
  - Create a Class
  - Create a Quiz
  - Assign a Quiz
  - Seeing student results/scores
  - Lesson Plans
  - Resource Materials

Reinforcement: Creating and Assigning Quizzes

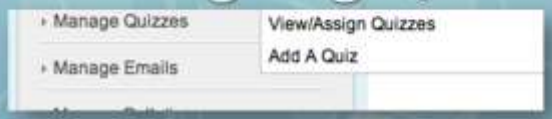
- For most effective prep, *students must complete assignments*
- To create a customized quiz, go to "Manage Quizzes" → "Add a Quiz" in left-side directory
- Complete "Add a Quiz" dialogue boxes to assign selected content

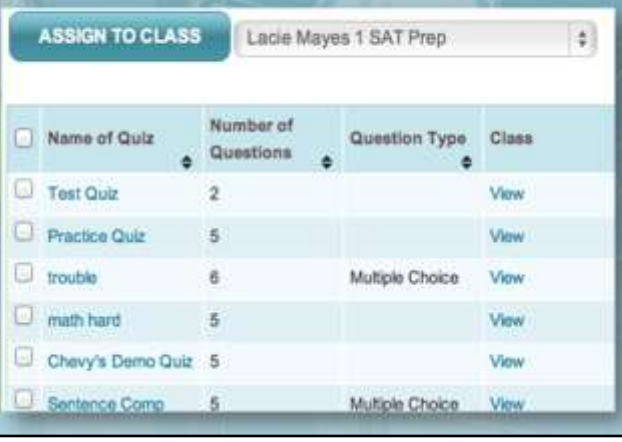




Reinforcement: Creating and Assigning Quizzes

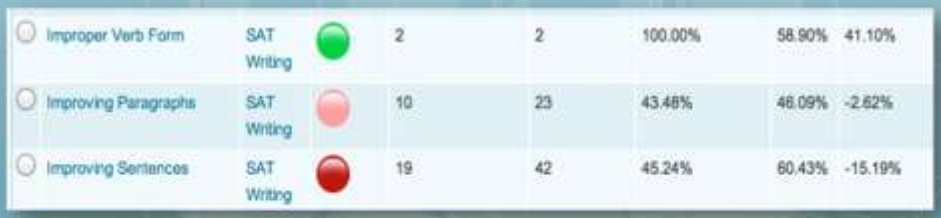
- Return to "View/Assign Quizzes" and assign quiz to your class
- Students can create quizzes on demand





Seeing student results

Concept Summary Reports

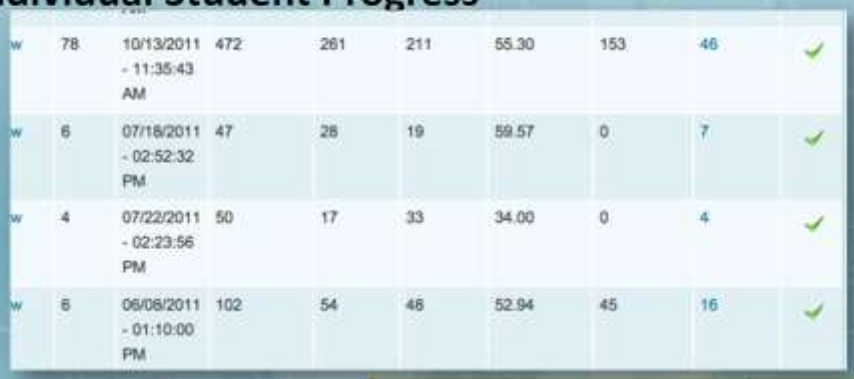


Improper Verb Form	SAT Writing		2	2	100.00%	58.90%	41.10%
Improving Paragraphs	SAT Writing		10	23	43.48%	46.09%	-2.62%
Improving Sentences	SAT Writing		19	42	45.24%	60.43%	-15.19%

- Use to determine relative strengths and weaknesses on a class level
- Compare to MTP norms
- Know where to focus for reinforcement

Tracking Success

Individual Student Progress



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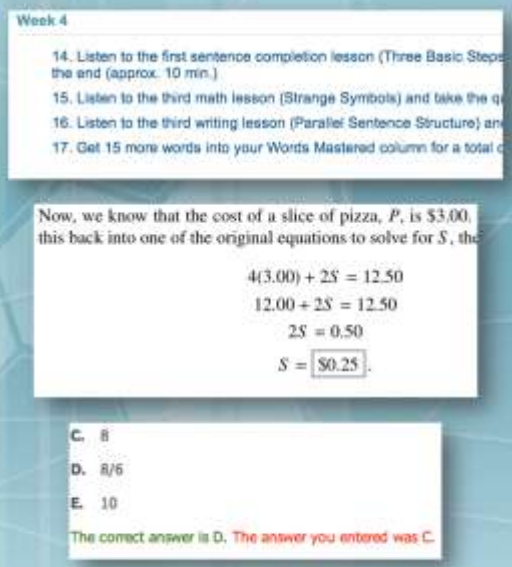
w	6	07/18/2011 - 02:52:32 PM	47	28	19	59.57	0	7	✓
w	4	07/22/2011 - 02:23:56 PM	50	17	33	34.00	0	4	✓
w	6	06/06/2011 - 01:10:00 PM	102	54	48	52.94	45	16	✓

- Monitor students' quiz scores, logins, words mastered, % correct, and more

Course Checklist

- Comprehensive structure for all SAT and ACT sections
- Clickable links lead to lessons and quizzes
  - Lessons are full of worked example problems with full audio
  - Quizzes offer brief reinforcement with instant feedback & audio and video explanations
- Most important material at the start
- Follow the checklist in any order
- Assign lessons and quizzes in class and for homework



Working With the Checklist: Path to Success

- Instructor may do a chalkboard mini-lesson or problem session based on the checklist lessons
  - Problems can be drawn from MTP's *Practice Questions* section, or from books
    - SAT: *The Official SAT Study Guide, 2nd ed.*
    - ACT: *The Real ACT Prep Guide, 3rd ed.*
- Depending on school resources, class time can be split between board and computer work
  - Checklist assignments can be given by number

Example Lesson: Plan

- SAT Math: Strange Symbols
  - 1st 15 min: students work independently on Strange Symbols lesson and quiz online
    - Learn technique
    - Practice problems
    - Audio/video explanations
  - 2nd 15 min: instructor can pull problems from MTP question database or *Official SAT Study Guide*
    - Great for demonstrating anticipated student questions and problems with twists
    - Example: p. 456 #15 in *OSSG*; "quadruple" problem in MTP online database

Example Lesson: Discussion Questions

From the MTP Online Program

Let a "g- quadruple" be defined as $(2g, g, 3g/5, g/2)$. Which of the following is a g-quadruple?

(A) (60, 30, 40, 20)

(B) (140, 70, 42, 35)

(C) (50, 80, 30, 40)

(D) (45, 90, 70, 60)

(E) (90, 180, 20, 360)

MTP anticipates language-based "spins" on problems

Link to Presentation & Lesson Plans

https://www.dropbox.com/sh/1ptopowwoicygch/JLVv57AJVn