HIGHER GROUND LEARNING

SAT CURRICULUM

FOR THE NEW DIGITAL EXAM

1.2023

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INTRODUCTION

The digital SAT is all-new for 2023, and there are significant changes from the previous paper version.

The new digital SAT is a multistage adaptive test (MST). There are only two sections: "Reading and Writing" and "Math." In practice, the significance of MST is that students will take "Stage 1" (or module) of each section, which will be comprised of easy, medium, and hard questions. Based on a student's success with question difficulty, the second module is taken from a complete set of questions that is either easier or harder. Because the adaptive nature of the new SAT is by module, students will still have the opportunity to go back to questions that they skip within that module, and there is no guessing penalty.

Another change to the SAT is that each question is discrete; there are no more long passages on Reading and Writing, and no more "paired questions" on Reading or Math. Also, a calculator is allowed on all Math questions.

Due to the adaptive nature of the test, the SAT has been able to significantly truncate the time required for the exam. A timing breakdown is below:

Reading and Writing: 2 modules, each module is 32 minutes and is composed of 27 questions.

Total Time: 64 minutes. Total Questions: 54.

Break: There will be a 10 minute break between Reading and Writing and Math.

Math: 2 modules, each module is 35 minutes and is composed of 22 questions.

Total Time: 70 minutes. Total Questions: 44

Total Test Time: 2 hours and 24 minutes

Note that each module has two "pre-test" questions incorporated into it. These are questions that won't be counted towards a student's score, instead the SAT uses these to refine future exams. Student's WILL NOT know which two questions are classified as "pre-test," so they must put forth 100% effort on all questions.

READING SKILLS

Comprehension Monitoring

Comprehension monitoring is the ability of a reader to be aware, while reading, whether a text is making sense or not.

Your reading level is **never** static. It can fluctuate and change based upon your personal engagement with the text. A strong reader adjusts their reading style to comprehend material that is more difficult, such as slowing down or re-reading.

The best way to practice your comprehension monitoring skills is to force yourself to re-read sentences or paragraphs at a slower pace when you don't understand them.

Exercise

Monitor your comprehension on this text: Quickly summarize the paragraph after reading through it the first time. Then, read it a second time and write a new summary and note what you missed on the first read-through.

Hamilton, Alexander. Federalist No. 1

The Federalist (later known as The Federalist Papers) is a collection of 85 articles and essays promoting the ratification of the United States Constitution.

To the People of the State of New York:

After an unequivocal experience of the inefficiency of the subsisting federal government, you are called upon to deliberate on a new Constitution for the United States of America. The subject speaks its own importance; comprehending in its consequences nothing less than the existence of the UNION, the safety and welfare of the parts of which it is composed, the fate of an empire in many respects the most interesting in the world. It has been frequently remarked that it seems to have been reserved to the people of this country, by their conduct and example, to decide the important question, whether societies of men are really capable or not of establishing good government from reflection and choice, or whether they are forever destined to depend for their political constitutions on accident and force. If there be any truth in the remark, the crisis at which we are arrived may with propriety be regarded as the era in which that decision is to be made; and a wrong election of the part we shall act may, in this view, deserve to be considered as the general misfortune of mankind.

First Summary:

Second Summary:

3. Futurists are convinced that someday Mars will be inhabited by humans who will be able to self-sustain all systems necessary for the ongoing support of life on the Red Planet. <u>Based on evaluating recent research, they are even more optimistic that this will happen by the year 2100.</u> The possibility of synthesizing necessary resources from elements on Mars is moving swiftly.

Which choice best describes the function of the second sentence in the overall structure of the text?

A) It explains the recent research received by Futurists.

B) It presents the central finding of the research.

C) It establishes a time-line for the colonization of Mars.

D) It presents exactly when humans will inhabit Mars.

4. Bristlecone pine trees are renowned for attaining great ages. In fact, the oldest known Bristlecone pine is over 4,800 years old. <u>However, trees that reproduce by cloning lay claim to the title of "oldest" living tree.</u> There is a colony of over 47,000 quaking Aspens in Utah that is estimated to be 80,000 years old. On the other hand, Bristlecone pines are invaluable to dendroclimatologists because they provide the longest continual climatically sensitive tree-ring chronologies on Earth (single above-ground Aspens only provide about 130 years of tree rings).

Which choice best describes the function of the second sentence in the overall structure of the text?

A) It clarifies how Bristlecone pines reproduce.

B) It presents a generalization that is exemplified by the discussion of quaking Aspens.

C) It clarifies why Bristlecone pines are important to dendroclimatologists.

D) It provides context that clarifies why quaking Aspens spread so easily.

5. **Text 1**

"Payday" loan companies often claim that they are providing a much needed service – small loans averaging $500 – to individuals who have poor credit and would not qualify for traditional loans or credit cards. The companies point to situations, such as obtaining necessities like food, medicine, and fuel, where an individual would be in dire circumstances without the ability to acquire the necessary items quickly.

Text 2

Economists and activists have long argued that the anecdotal evidence that Payday loan companies provide to justify their operation is spurious at best. They point to the exorbitant interest rates these companies charge (typically 300–500%, oftentimes disguised as fees) as only hurting people in the long run. Advocates argue that for the public good federal rules should be rewritten so that banks can easily lend small amounts at much more reasonable rates to individuals.

Based on the texts, how would the advocates (Text 2) most likely respond to the loan companies' claims (Text 1)?

A) They would argue that while the companies are performing a much needed service, they should find ways to lower their lending rates.

B) They would recommend that the loan companies should start issuing credit cards to individuals.

C) They would argue that the claims are without factual evidence and that there are much needed policy initiatives which could address individuals' needs.

D) They would support the claim given the fact that food, medicine, and fuel are essential in people's lives.

Winter ■ Summer ■
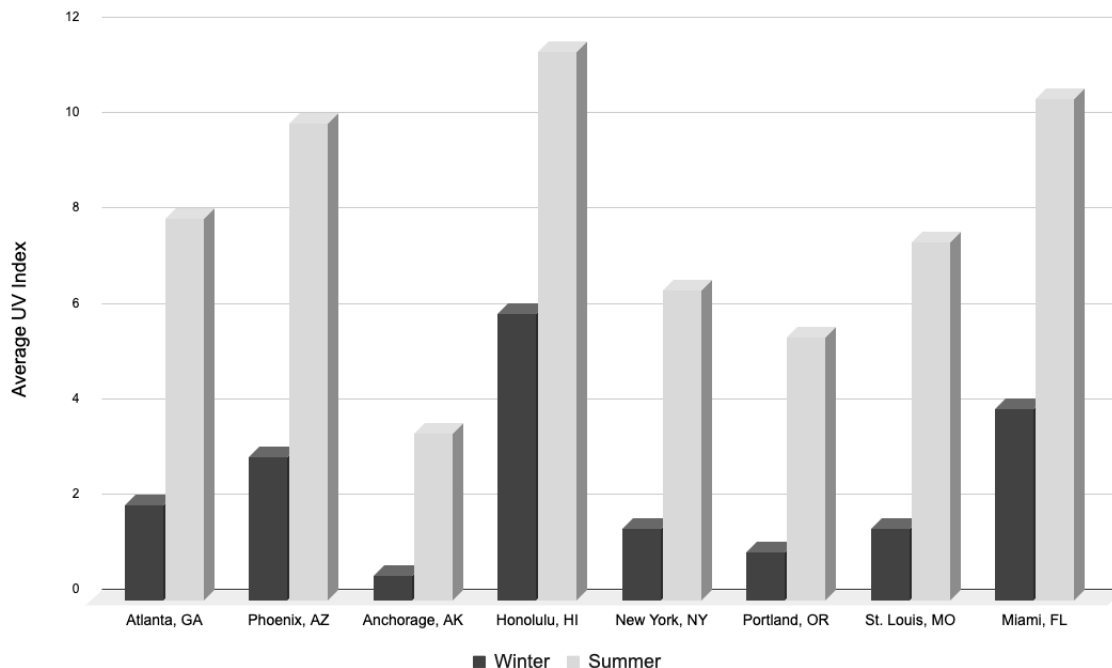
10. Individuals living in locations closer to the equator or at higher altitudes have been considered to be at greatest risk for melanoma because of early studies linking latitude and altitude with the disease worldwide. However, differences in population demographics, sun protection behaviors, risk awareness, physician density, and melanoma case reporting also influence the observed association between area-level UV and melanoma incidence rates. One study found that melanoma risk did correlate with average annual UV exposure and residential history by county, although time spent outdoors was only associated with an increased risk of melanoma for those reporting this exposure at a young age. National cancer incidence data on melanoma has revealed a different risk pattern for American children. Wong et al found that children living in areas with low UV exposure had a significantly greater incidence of melanoma compared with children living in areas with high UV exposure. It seems counter-intuitive_____. The reasons for this finding have not been clearly elucidated, but sunburn in children living in low UV exposure areas may be a sign of intense, intermittent exposure (for example, during vacations).

Which choice most effectively uses data from the graph to complete the sentence?

A) that children in Anchorage would have a higher rate of melanoma than children in Miami.

B) that Honolulu has the highest average UV index.

C) that Portland has a higher melanoma rate in children than Anchorage.

D) that Atlanta's melanoma rate in children is so low.

Expression of Ideas

Students will use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals.

There are two types of questions that fall under this domain: some focus on transitions, and the others focus on taking bullet point information and summarizing it in the most effective way while staying true to the specified goals of the question. These questions are all about logic, flow, focus, and comprehension; they are not about grammatical rules.

Transitions

Transitions are often called "signal words" because they signal a relationship between ideas. They are not used to grammatically connect sentences, but instead to make a text smoother and minimize confusion. Transitions may begin sentences, link thoughts within sentences, or help unify sentences and paragraphs. Correctly used transitions are vital to coherent paragraphs and compositions because they help avoid choppy, fragmented ideas.

Logical Progression: These transition words move from one idea to a similar idea.

Similarly, Furthermore, Likewise, In the same way, Moreover

Logical Contrast: These transition words move from one idea to a contrasting idea.

However, Nonetheless, Despite this, But, Yet

Cause and Effect: These transition words imply that the following idea occurred as a result of the previous idea.

Consequently, Therefore, As a result, Thus

Evidence: These transition words move from an idea to specific evidence for that idea.

For example, For instance, In fact

Time and sequence: These transition words place an event within a series of other events.

Finally, Meanwhile, Next, Later

This isn't a complete list of the transition words you'll see on the test, and you'll even see some choices that don't quite fit within these five categories. However, these categories are a good place to start when tackling "transitions" questions.

Summarization

You must pay very close attention to the question itself when approaching these problems. These are not related to grammar rules. Some will require you to provide the best summary, but you also might need to emphasize something specific: look for clue words such as *similar* and *difference*. They could also incorporate other parameters, such as what would be the best way to introduce an author, research, or book to an audience that is not familiar with the aforementioned.

Practice

32. While researching a topic, a student has taken the following notes:

- Maika'i Tubbs is a Native hawaiian sculptor and installation artist.
- His work has been shown in the United States, Canada, Japan, and Germany, among other places.
- Many of his sculptures feature discarded objects.
- His work *Erasure* (2008) includes discarded audiocassette tapes and magnets.
- His work *Home Grown* (2009) includes discarded pushpins, plastic plates and forks, and wood.

The student wants to emphasize a similarity between the two works. Which choice most effectively uses relevant information from the notes to accomplish this goal?

A) *Erasure* (2008) uses discarded objects such as audiocassette tapes and magnets; *Home Grown* (2009), however, includes pushpins, plastic plates and forks, and wood.

B) Like many of Tubbs's sculptures, both *Erasure* and *Home Grown* include discarded objects: *Erasure* uses audiocassette tapes, and *Home Grown* uses plastic forks.

C) Tubbs's work, which often features discarded objects, has been shown both within the United States and abroad.

D) Tubbs completed *Erasure* in 2008 and *Home Grown* in 2009.

33. While researching a topic, a student has taken the following notes:

- The Heliocentric Model has the Earth and other planets revolving around the sun.
- Ancient Greek philosopher Aristotle was a proponent of the Heliocentric Model.
- The Geocentric Model has the sun and other planetary bodies revolving around the Earth.
- Ancient Greek philosopher Ptolemy was a proponent of the Geocentric Model.
- The Heliocentric Model eventually became dominant after Copernicus demonstrated that it better utilized mathematics to explain astronomical observations.

The student wants to emphasize a similarity between the Heliocentric and Geocentric theories. Which choice most effectively uses relevant information from the notes to accomplish this goal?

A) The Heliocentric and Geocentric models are both widely accepted by scientists today.
B) Both the Heliocentric and Geocentric models incorporate rotational movement.
C) The Geocentric and Heliocentric models were both widely known by the citizens of ancient Greece.
D) Aristotle and Copernicus were both eminent scientists who lived in ancient Greece.

Strategy – Student-Produced Responses

Carefully note the SAT's guidelines on the questions that aren't multiple choice. You MUST follow these or else you will get no credit.

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction (7/2) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 7/2	31/2 3 1/2
$\frac{2}{3}$	2/3 .6666 .6667 0.666 0.667	0.66 .66 0.67 .67
$-\frac{1}{3}$	−1/3 −.3333 −0.333	−.33 −0.33

Problem Solving and Data Analysis

On these problems you will need to apply quantitative reasoning regarding ratios, rates, and proportional relationships as well as understand and apply unit rates and conversion. You'll also be tasked with analyzing and interpreting one and two-variable data. Finally, basic knowledge about statistics is necessary.

Percentages

As a pure concept a percentage is "part/whole." Problems will likely be more complicated than that simple ratio, but at the heart of it, a percentage is merely a specific relationship between two numbers. Converting percentages to decimals in order to do calculations should be second nature for anyone taking the SAT. Just move the decimal place two positions to the left to convert a percentage to a decimal, and vice-versa to go back to a percentage. For example, 5% is 0.05 as a decimal; and 0.23 is 23% as a percentage.

4 Types of Percentage Problems

Type 1: Taking one percentage

In a situation where there is only one percentage being calculated, simply convert the percentage into a decimal and multiply. This is the easiest type of percentage problem.

   Q: *What is 43% of 88?*
   A: (0.43)(88) = 37.84

Type 2: Taking two percentages without the passage of time

Sometimes you will be asked to take two percentages within one problem. If this happens, pay attention to the chronology in the problem. If you are taking the percentages simultaneously, then simply convert all of the percentages to decimals and multiply through.

   Q: *What is 32% of 44% of 78?*
   A: (0.32)(0.44)(78) = 10.98

Type 3: Taking two percentages WITH the passage of time

If time lapses between the two percentages, then you must do the problem in steps. Take the first percentage, then use the result in your second calculation for a percent increase or decrease.

   Q: Susan buys skis that are 20% off the retail price of $600. She then sells them for a 15% profit. How much does she sell them for?
   A: 600 − 600(0.2) = 480 :: 480 + 480(0.15) = 552

After you are fully comfortable with the two-step process it is highly recommended that you adopt a one-step process: in the above example it would be (600)(0.8)(1.15) = 552

Type 4: Percent Increase or Decrease

If a problem asks about how to find the percent increase or decrease between two values remember to first find the difference between the original and new value and then divide that result by the original value. Conceptually, you are comparing the **change** to the **original value**.

Q: If Jim got a bonus of $1200 last year and this year he got a bonus of $1800. What is the percent increase of his bonus this year compared to last year?
A: 1800 − 1200 = 600 :: 600/1200 = 0.5 :: So it was a 50% increase in his bonus.

Practice

62. In Mr. Edwards Advanced Logic class, students must take both a written exam and an oral exam. In the past, 65% of his students passed the written exam and 45% of those who passed the written exam also passed the oral exam. Based on these figures, about how many students in a class of 120 would you expect to pass both exams?

   A) 35
   B) 36
   C) 40
   D) 45

63. A motorcycle that sells for $5200 is subject to a sales tax of 7.25%. Which of the following calculations gives the total cost of the motorcycle?

   A) 5200 + 5200(7.25)
   B) 5200(0.0725)
   C) 5200 + 5200(0.725)
   D) 5200 + 5200(0.0725)

64. The enrollment at a high school increased 20 percent between 2010 and 2012. Enrollment then increased 15 percent between 2012 and 2014. The enrollment in 2014 was what percent greater than in 2010?

   A) 35%
   B) 36%
   C) 37%
   D) 38%

65. A positive number x is increased by 20% to produce y. If y is decreased by 30% to produce z, then z is equivalent to which of the following?

   A) x decreased by 10 percent
   B) x decreased by 14 percent
   C) x increased by 4 percent
   D) x decreased by 16 percent

Growth

The SAT will test your knowledge of Linear vs. Exponential growth. Just like their names imply, linear growth (sometimes referred to as Arithmetic) creates a straight line and exponential (sometimes referred to as Geometric) will create part of a parabola.
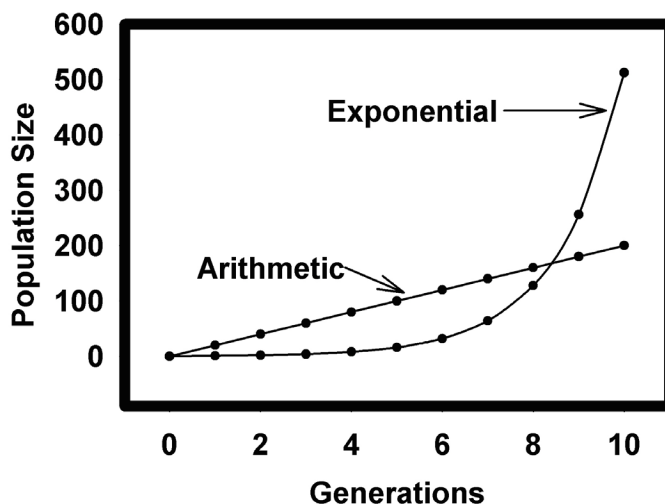
Compounding Growth

You don't need to have the formulas for continuous and periodic growth memorized, but you do need to understand how these exponential equations work.

Continuous compounding growth is given by $A = Pe^{rt}$. A is the <u>Amount</u>. P is the starting value, or <u>Principal</u>. e is the mathematical constant. r is the <u>Rate</u>. And t is the <u>Time</u> in years.

Example

   If John invests \$200 in a continuously compounding savings account at a rate of 13%, how much money will he have in 5 years?

Total money in 5 years will equal $200(e)^{(0.13)(5)}$, so \$383.11

As long as you keep all of the variables straight in your head, a problem like this should be relatively easy.