Welcome To Achieve Test Prep & Tutoring !

Your Score is Your Choice

Skills Seminar for the Redesigned SAT

Name: _____

Date: _____

Classroom Expectations

1. Be Ready
2. Be Respectful
3. Be Responsible
4. Be Safe

Welcome to Achieve SAT: Skills Seminar

Suggested Pacing

25 Minutes   **Intro., NEW SAT Scoring, Goals**

1 hr. 35 Minutes   **Reading**
          Question Types, Answer Traps
          Guided Reading Practice

1 Hour   **Writing and Language: Expression of Ideas**
          Writing and Language: Grammar Errors

1 Hour   **LUNCH**

30 Minutes   **Guided Writing and Language Practice**

2 Hours   **Math Instruction**
          Calculator/No Calculator

30 Minutes   **Guided Math Practice**

Are you ready for the NEW SAT?

1600 Total Points

800	800

Evidence Based Reading and Writing	Math

Writing and Language Expression of Ideas Standard English Conventions	Reading Command of Evidence Words in Context	Math Heart of Algebra Problem Solving &Data Analysis Passport to Advanced Math
35 Minutes 44 Questions	65 Minutes 52 Questions	25 Minutes/20 Qs NO Calc. 55 Minutes/38 Qs OK Calc.
4 Passages	5 Passages	No Calc: 20 Qs/15 MC/ 5 GI Calc: 38 Qs/30 MC/ 8 GI
Section 2	Section 1	Section 3 (No Calc.) Section 4 (Calc.)

A very good score nationally: <1200
An average score nationally: +-1000
A low score nationally: <800

What is your goal score for the SAT?   _____

What is your # 1 choice college for admission?   _____

What do you want to study in college?   _____

Scoring

Raw score is the amount you have correct for each test (Reading, Writing & Language, & Math). Blank answer choices do not impact the raw score.   There are no more deductions for wrong answers. GUESS on each question, even if you are unsure.

GET SECTION AND TOTAL SCORES

Your total score on the SAT practice test is the sum of your Evidence-Based Reading and Writing Section score and your Math Section score. To get your total score, you will convert what we call the "raw score" for each section — the number of questions you got right in that section — into the "scaled score" for that section, then calculate the total score.

The SAT no longer has wrong answer penalties.
 TIP: When in doubt, or short of time, go ahead and guess!

Calculate your Evidence-Based Reading and Writing Score

Add up the number of correct responses for each test.

Use a raw-score conversion table

Match your raw score to the suggested Reading score, then do the same for the Writing Score, then multiply that number by 10.

Calculate your Math Score

Add up the number of correct responses for Math-No Calc. & Math Calc. Sections.

Use a Raw-Score conversion table.

Sample Raw Score Conversion Table

RAW SCORE CONVERSION TABLE 1 — SECTION AND TEST SCORES

Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score	Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score
0	200	10	10	30	530	28	29
1	200	10	10	31	540	28	30
2	210	10	10	32	550	29	30
3	230	11	10	33	560	29	31
4	240	12	11	34	560	30	32
5	260	13	12	35	570	30	32
6	280	14	13	36	580	31	33
7	290	15	13	37	590	31	34
8	310	15	14	38	600	32	34
9	320	16	15	39	600	32	35

The Reading Test

Section 1: 65 Minutes: 52 Questions

5 Passages
US/world literature
Social studies passage with graphic
Science paired-passages
Social studies passage (U.S founding document/global conversation)
Science passage with graphic

How to do Reading Passages:
Get excited about what you will learn.
Take time to understand the introduction.
Look for and underline facts that support the main idea.
Pause and reflect when encountering unfamiliar words.
Circle or add an asterisk supporting facts for the argument or main idea.
If a visual comes to mind- draw it next to passage for further understanding
Take time to understand diagrams.

Command of Evidence Questions:

Main idea or specific details
Author's attitude about the subject
Authors logic and techniques
Implications of the discussion

Words in Context Questions:
Meaning of specific words

Your Turn: Go to Practice Set 1 Questions, and identify each question type.

Be aware of Wrong-answer TRAPS:
NIP:
ATM:
TBTN:
RF:
TRU:

Generally, people comprehend at a higher level when reading something of interest.

TIP: Flip through passages and start with the one that interests you the most.

Practice Set 1:

Questions 43-52 are based on the following passage and supplementary material.

This passage is adapted from Geoffrey Giller, "Long a Mystery, How 500-Meter-High Undersea Waves Form Is Revealed." ©2014 by Scientific American.

Some of the largest ocean waves in the world are nearly impossible to see. Unlike other large waves, these rollers, called internal waves, do not ride the
Line ocean surface. Instead, they move underwater,
5 undetectable without the use of satellite imagery or sophisticated monitoring equipment. Despite their hidden nature, internal waves are fundamental parts of ocean water dynamics, transferring heat to the ocean depths and bringing up cold water from below.
10 And they can reach staggering heights—some as tall as skyscrapers.

Because these waves are involved in ocean mixing and thus the transfer of heat, understanding them is crucial to global climate modeling, says Tom
15 Peacock, a researcher at the Massachusetts Institute of Technology. Most models fail to take internal waves into account. "If we want to have more and more accurate climate models, we have to be able to capture processes such as this," Peacock says.
20 Peacock and his colleagues tried to do just that. Their study, published in November in *Geophysical Research Letters*, focused on internal waves generated in the Luzon Strait, which separates Taiwan and the Philippines. Internal waves in this region, thought to
25 be some of the largest in the world, can reach about 500 meters high. "That's the same height as the Freedom Tower that's just been built in New York," Peacock says.

Although scientists knew of this phenomenon in
30 the South China Sea and beyond, they didn't know exactly how internal waves formed. To find out, Peacock and a team of researchers from M.I.T. and Woods Hole Oceanographic Institution worked with France's National Center for Scientific Research
35 using a giant facility there called the Coriolis Platform. The rotating platform, about 15 meters (49.2 feet) in diameter, turns at variable speeds and can simulate Earth's rotation. It also has walls, which means scientists can fill it with water and create
40 accurate, large-scale simulations of various oceanographic scenarios.

Peacock and his team built a carbon-fiber resin scale model of the Luzon Strait, including the islands and surrounding ocean floor topography. Then they
45 filled the platform with water of varying salinity to replicate the different densities found at the strait, with denser, saltier water below and lighter, less briny water above. Small particles were added to the solution and illuminated with lights from below in
50 order to track how the liquid moved. Finally, they re-created tides using two large plungers to see how the internal waves themselves formed.

The Luzon Strait's underwater topography, with a distinct double-ridge shape, turns out to be
55 responsible for generating the underwater waves. As the tide rises and falls and water moves through the strait, colder, denser water is pushed up over the ridges into warmer, less dense layers above it. This action results in bumps of colder water trailed
60 by warmer water that generate an internal wave. As these waves move toward land, they become steeper—much the same way waves at the beach become taller before they hit the shore—until they break on a continental shelf.
65 The researchers were also able to devise a mathematical model that describes the movement and formation of these waves. Whereas the model is specific to the Luzon Strait, it can still help researchers understand how internal waves are
70 generated in other places around the world. Eventually, this information will be incorporated into global climate models, making them more accurate. "It's very clear, within the context of these [global climate] models, that internal waves play a role in
75 driving ocean circulations," Peacock says.

CHANGES IN DEPTH OF ISOTHERMS*
IN AN INTERNAL WAVE OVER A 24-HOUR PERIOD

Time (hours)

--- 13°C —— 11°C ···· 10°C —— 9°C
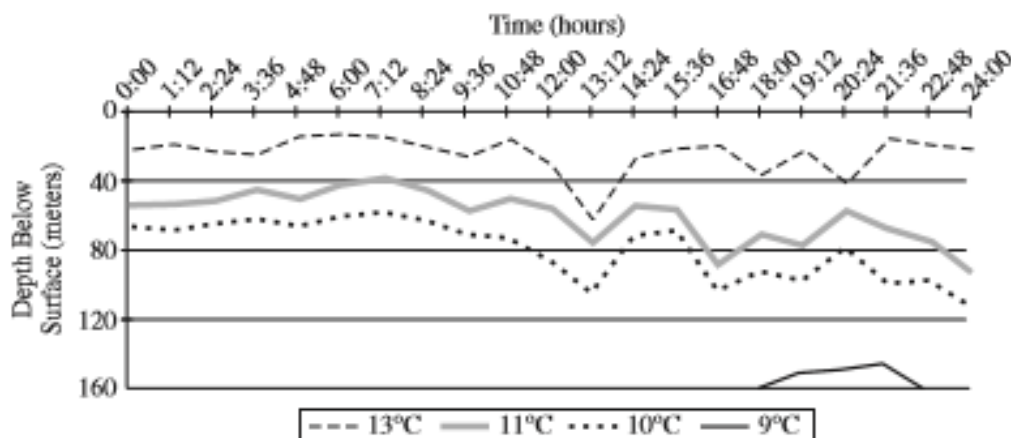
* Bands of water of constant temperatures

Adapted from Justin Small et al., "Internal Solitons in the Ocean: Prediction from SAR." ©1998 by Oceanography, Defence Evaluation and Research Agency.

43

The first paragraph serves mainly to

A) explain how a scientific device is used.

B) note a common misconception about an event.

C) describe a natural phenomenon and address its importance.

D) present a recent study and summarize its findings.

44

As used in line 19, "capture" is closest in meaning to

A) control.

B) record.

C) secure.

D) absorb.

45

According to Peacock, the ability to monitor internal waves is significant primarily because

A) it will allow scientists to verify the maximum height of such waves.

B) it will allow researchers to shift their focus to improving the quality of satellite images.

C) the study of wave patterns will enable regions to predict and prevent coastal damage.

D) the study of such waves will inform the development of key scientific models.

46

Which choice provides the best evidence for the answer to the previous question?

A) Lines 1-2 ("Some . . . see")

B) Lines 4-6 ("they . . . equipment")

C) Lines 17-19 ("If . . . this")

D) Lines 24-26 ("Internal . . . high")

47

As used in line 65, "devise" most nearly means

A) create.

B) solve.

C) imagine.

D) begin.

48

Based on information in the passage, it can reasonably be inferred that all internal waves

A) reach approximately the same height even though the locations and depths of continental shelves vary.

B) may be caused by similar factors but are influenced by the distinct topographies of different regions.

C) can be traced to inconsistencies in the tidal patterns of deep ocean water located near islands.

D) are generated by the movement of dense water over a relatively flat section of the ocean floor.

49

Which choice provides the best evidence for the answer to the previous question?

A) Lines 29-31 ("Although . . . formed")

B) Lines 56-58 ("As the . . . it")

C) Lines 61-64 ("As these . . . shelf")

D) Lines 67-70 ("Whereas . . . world")

50

In the graph, which isotherm displays an increase in depth below the surface during the period 19:12 to 20:24?

A) 9°C

B) 10°C

C) 11°C

D) 13°C

51

Which concept is supported by the passage and by the information in the graph?

A) Internal waves cause water of varying salinity to mix.

B) Internal waves push denser water above layers of less dense water.

C) Internal waves push bands of cold water above bands of warmer water.

D) Internal waves do not rise to break the ocean's surface.

52

How does the graph support the author's point that internal waves affect ocean water dynamics?

A) It demonstrates that wave movement forces warmer water down to depths that typically are colder.

B) It reveals the degree to which an internal wave affects the density of deep layers of cold water.

C) It illustrates the change in surface temperature that takes place during an isolated series of deep waves.

D) It shows that multiple waves rising near the surface of the ocean disrupt the flow of normal tides.

Writing and Language Test

Section 2: 35 Minutes: 45 Questions

4 Passages
Career-related passage
Humanities
Social Studies
Science

Explanatory/Informative- Arguments-Narratives

Graphs, Charts, and/or Graphic included on 1 or more passage.

Question Types:

Expression of Ideas:
Improving the quality of the author's message

Standard English Conventions:
Meaning of specific words

Words in Context:
Determine the correct usage of a word

What to expect on the *Writing and Language Test:*

Expression of Ideas Questions:

To make the paragraph most logical...
The writing is considering deleting the following....
The writer is considering moving paragraph 2 to a different...
Which choice most effectively states the main topic of the paragraph...

Standard English Conventions:

Grammar Basics
Wordiness
Parallelism
Modifiers
Logical comparison
Coordination and subordination
Verb use and tense
Singular and Plural Agreement
Diction (Proper Wording)
Punctuation
Commas
Seimicolons
Colons
Dashes
Apostrophes
Quantitative Graph Analysis

Words in Context:

Your Turn: Go to Practice Set 2 Questions, and identify each question type.

Standard English Conventions:

Grammar Basics

Common Error # 1   Modifiers

Incorrect	Correct
My friend pensively enjoyed his dinner, chewing quietly.	My friend, chewing quietly, pensively enjoyed his dinner.
After eating the whole pizza, ready to take a nap was John.	After eating the whole pizza, John was ready to take a nap.

This error can easily be identified when there is an _____ separated by a _____, and the who or what (the subject) is not in the phrase or immediately following it.

Fix the error by putting the who or what _____ the phrase or _____ after it.

Common Error #2 Parallelism / Illogical Comparisons

This error is tested in two separate ways and The _____ LOVES this error!

These errors exist in a <u>list of actions or items</u> OR in an <u>illogical comparison</u>.

Incorrect	Correct
Driving the sports car is both exhilarating and relaxed.	Driving the sports car is both exhilarating and relaxing.
In the gym, on the field, and the classroom, Hannah acted like a true champion.	In the gym, on the field, and in the classroom, Hannah acted like a true champion.
Your locker is always neater than me.	Your locker is always neater than my locker.
The president of the steel company is more qualified than the computer company.	The president of the steel company is more qualified than the president of the computer company.

Common Error # 3 Wordiness

When there are simply too many _____ or repetitive phrases, there is a problem with wordiness.   * Often times (but not every single time), the shortest answer corrects this error. This makes sense! If the sentence has too many _____ , then having fewer words solves the problem!

Incorrect	Correct
I am going to run for the distance of three miles.	I am going to run for three miles.
Teachers who educate people often have to work long hours grading papers and planning lessons.	Teachers often have to work long hours grading papers and planning lessons.

Common Error #4 Pronouns

Incorrect	Correct
For the robber trying to decide between two potential getaway cars, each car up for consideration has their own set of advantages.	For the robber trying to decide between two potential getaway cars, each car up for consideration has its own set of advantages.
Every student at the party tried to look their best.	Every student at the party tried to look his or her best.

Look for _____ .

Always check the pronoun to its nearest antecedent.

Many, many times ITS and THEIR are mixed up.

Common Error #5 Subject/Verb Agreement

Incorrect	Correct
Atop my sundae, a colossal mass of ice cream, whipped cream, and sprinkles, sits two maraschino cherries.	Atop my sundae, a colossal mass of ice cream, whipped cream, and sprinkles, sit two maraschino cherries.
At swimming pools last summer, the heat will have brought hundreds and even thousands of people to bathe in chlorine-infested waters	At swimming pools last summer, the heat brought hundreds and even thousands of people to bathe in chlorine-infested waters.

Look for _____.

Verbs have errors when:

They do not match in number to the _____ of the sentence.

The tenses are switched, or special tenses are used.

Common Error #6 Coordination and Subordination

Incorrect	Correct
The newspaper delivery didn't come, and we watched television news.	The newspaper delivery didn't come, so we watched television news instead.
She finished her homework, she is going to play video games.	Since she finished her homework, she is going to play video games.

Look for parts of sentences that need to be correctly joined by logical connecting words.

SAT Writing: Bonus Section

There are certain special "verbs" that are heavily tested on the SAT

SPECIAL VERBS ON THE SAT

Look for IS/ARE/WERE/WAS
These are all a form of the verb "to be" and, when they appear on the SAT, they usually do not match in number to the subject they are describing.

Any form of the verb TO BE frequently appears as an error in Improving Sentences and Identifying Sentence Errors.

is	**are**	**were**	**was**	am	being	to be

Incorrect: Even though Esther created a petition to protest the crowning of a Prom Queen, there is many people who refused to sign, saying they support the 1950s – era tradition. No Error

Incorrect: Sundaes with whipped cream and cherries, while good if consumed in moderation, is heinous if eaten for breakfast, lunch and dinner. No Error

Look for HAVE/HAS/HAD

Have, has, and had are helping verbs or auxiliary verbs. They function like verbs and need to match in number to the subject they are describing.

HAVE and HAS often appear as an error in Improving Sentences and Identifying Sentence Errors

have (I, Plural Subjects)	has (Singular Subjects)	had (Singular and Plural Subjects)

Questions 23-33 are based on the following passage and supplementary material.

Environmentalist Otters

It has long been known that the sea otters ▮ living along the West Coast of North America help keep kelp forests in their habitat healthy and vital. They do this by feeding on sea urchins and other herbivorous invertebrates that graze voraciously on kelp. With sea otters to keep the population of sea urchins in check, kelp forests can flourish. In fact, ▮ two years or less of sea otters can completely eliminate sea urchins in a coastal area (see chart).

Effects of Sea Otter Presence on Kelp and Sea Urchin Density in Coastal Areas
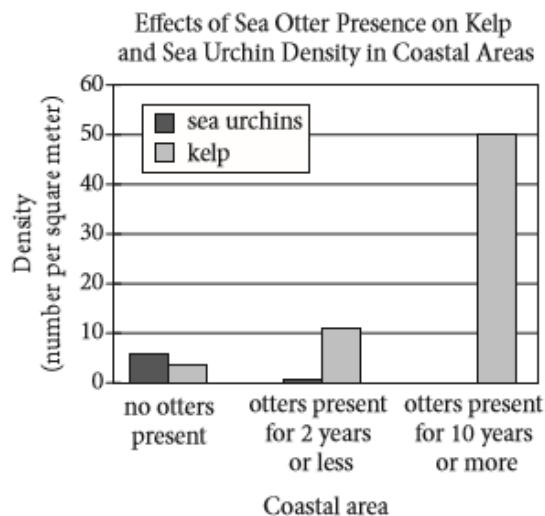
Adapted from David O. Duggins, "Kelp Beds and Sea Otters: An Experimental Approach." ©1980 by the Ecological Society of America.

Without sea otters present, ▮ nevertheless, kelp forests run the danger of becoming barren stretches of coastal wasteland known as urchin barrens.

23

A) NO CHANGE

B) living along the West Coast of North America, they help

C) that live along the West Coast of North America and help to

D) that live along the West Coast of North America, where they help

24

Which choice offers an accurate interpretation of the data in the chart?

A) NO CHANGE

B) even two years or less of sea otter presence can reduce the sea urchin threat

C) kelp density increases proportionally as sea urchin density increases

D) even after sea otters were present for ten years or more, kelp density was still lower than sea urchin density

25

A) NO CHANGE

B) however,

C) hence,

D) likewise,

[1] What was less well-known, until recently at least, was how this relationship among sea otters, sea urchins, and kelp forests might help fight global warming. [2] The amount of carbon dioxide in the atmosphere has increased 40 percent ▮ . [3] A recent study by two professors at the University of California, Santa Cruz, Chris Wilmers and James Estes, ▮ suggests, that kelp forests protected by sea otters can absorb as much as twelve times the amount of carbon dioxide from the atmosphere as those where sea urchins are allowed to ▮ devour the kelp. [4] Like ▮ their terrestrial plant cousins, kelp removes carbon dioxide from the atmosphere, turning it into sugar fuel through photosynthesis, and releases oxygen back into the air.

26

At this point, the writer is considering adding the following information.

> since the start of the Industrial Revolution, resulting in a rise in global temperatures

Should the writer make this addition here?

A) Yes, because it establishes the relationship between the level of carbon dioxide in the atmosphere and global warming.

B) Yes, because it explains the key role sea otters, sea urchins, and kelp forests play in combating global warming.

C) No, because it contradicts the claim made in the previous paragraph that sea otters help keep kelp forests healthy.

D) No, because it mentions the Industrial Revolution, blurring the focus of the paragraph.

27

A) NO CHANGE
B) suggests—that
C) suggests, "that
D) suggests that

28

A) NO CHANGE
B) dispatch
C) overindulge on
D) dispose of

29

A) NO CHANGE
B) they're
C) its
D) it's

[5] Scientists knew this but did not recognize ▮ how large a role they played in helping kelp forests to significantly decrease the amount of carbon dioxide in the atmosphere. [6] Far from making no difference to the ecosystem, the presence of otters was found to increase the carbon storage of kelp forests by 4.4 to 8.7 megatons annually, offsetting the amount of carbon dioxide emitted by three million to six million passenger cars each year. ▮

Wilmers and Estes caution, however, that ▮ having more otters will not automatically solve the problem of higher levels of carbon dioxide in the air. But they suggest that the presence of otters provides a good model of how carbon can be sequestered, ▮ or removed; from the atmosphere through the management of animal populations. If ecologists can better understand what kinds of impacts animals might have on the environment, Wilmers contends, "there might be opportunities for win-win conservation scenarios, whereby animal species are protected or enhanced, and carbon gets sequestered."

30

A) NO CHANGE
B) how large a role that it played
C) how large a role sea otters played
D) that they played such a large role

31

Where is the most logical place in this paragraph to add the following sentence?

> What Wilmers and Estes discovered in their study, therefore, surprised them.

A) After sentence 1
B) After sentence 3
C) After sentence 4
D) After sentence 5

32
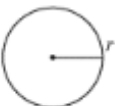
A) NO CHANGE
B) increasing the otter population
C) the otters multiplying
D) having more otters than other locations

33

A) NO CHANGE
B) or removed from,
C) or, removed from,
D) or removed, from
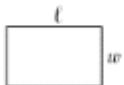
Math Reference Section
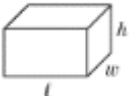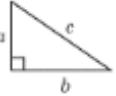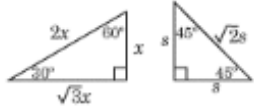
My Formulas:

In the math calculator, and no calculator section, there are some questions that require a student-produced response. These questions are also called "grid-ins."

Practice:
Grid in:

9. 83　　　　　10. 49 ½　　　　11. 18　　　　12. 8 $\frac{2}{3}$　　　　13. 1 < x < π　　14. 83.29

Rules for grid-ins:

- Grid in the most **accurate/exact answer** possible.
- Never round your answer (unless you are asked to)
- Always **PUT SOMETHING** rather than nothing here, because in this part only, there are NO DEDUCTIONS FOR WRONG ANSWERS.

The Math Test

Section 3: No Calculator: 25 Minutes: 20 Questions

Section 4: Calculator: 55 Minutes: 38 Questions

4 Question Types:

Heart of Algebra

equations-graphing-word problems-functions

- Linear Equations and Inequalities
- Systems of linear equations and inequalities

Passport to Advanced Mathematics

word problems-expressions-

- Exponents & Radicals
- Polynomials
- Functions
- Isolating Quantities

Problem Solving and Data Analysis

equations-word problems, tables & graphs, inferencing

- Rates, Ratios, Proportions
- Percents
- Units
- Tables & Graphs
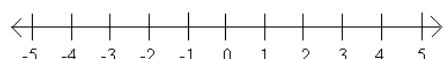- Linear and Exponential Growth

Additional Topics in Math

geometry-complex numbers

- Triangles
- Circles
- Complex Numbers
- Volume
- Congruence & Similarity

SAT Math: Integers, Exponents, Averages & Percents

INTEGERS:

An integer is: _____ and _____ and _____.

For how many positive integers, a, is it true that $a^2 \leq 2a$?

If xσιy represents the number of integers greater than x and less than y, what is the value of $-\pi$ σι $\sqrt{2}$?

Exponents:

There are rules (AKA: **SHORTCUTS)** to **know** about exponents.

$4^3 + 4^4 =$ $5^3 - 5^2 =$

When you are _____ and _____ in the same base, you have to _____.

$(2^5)(2^3) =$ $(2^5)^3 =$

When you are multiplying with exponents and the same base, use the _____.

$\dfrac{2^5}{2^3} =$ $\left(\dfrac{2}{7}\right)^3 =$

When dividing with exponents, use the _____.

$3^{-4} =$

When there is a negative exponent, use the opposite _____ of it.

AVERAGES:

Two Formulas:

Also know : mean, median, and mode

Mean is the   _____
Median is the   _____
Mode is the   _____

Practice:

John took five English tests during the first marking period, and his average (arithmetic mean) was 85. If his average after the first three tests was 83, what was the average on his fourth and fifth tests?

com

PERCENTS:

Rewrite *percent* word problems into number sentences:

PERCENT	FRACTION	DECIMAL
87%		
102%		
2.75%		

Percent Increase & Percent Decrease

Two Ideas , One Formula: _____ = decimal   change the decimal to a percent

Many retailers increase the price of their merchandise by a percentage.
In August, Blue Ray player at Best Buy was $80.00. The same Blue Ray player was being sold for $100.00 during the month of December. What was the percent increase of this product?

The same $80 Blue Ray player was marked all the way down to $55.00 on Black Friday. What was the percent decrease of this product?

Other Formulas for Percents:

To increase a given number by x%, multiply it by (1 + x%).
To decrease a given number by x%, multiply it by (1 – x%).

Increase 1600 by 20%

Decrease 1600 by 20%

SOLVING EQUATIONS AND SUBSTITUTIONS:
What ever is done to one side of the equation it must be done to the other side.

Goal in Algebra is: ISOLATE THE VARIABLE

Practice:
If 2y + 8x = 11, then what is the value of 3(2y + 8x)?

Suppose 3x = y + 5 and 2y – 2 = 12k. Solve for x in terms of k.

INEQUALITIES:

If you are not comfortable with inequalities, change the inequality sign with an equals sign, solve the problem, then put the inequality sign back in at the end.

But … BE CAREFUL: In an inequality, whenever you divide or multiply by a negative number, the direction of the inequality sign switches. *In absolute values with inequalities, when solving for the - , the sign also switches.

Practice:

Solve for x in the inequality I2x – 4I $\leq$ 6.

FUNCTIONS

For every one input value of a function, there is exactly one output value.

f(x) is 3x + 6: What is the value of f(4)?

x	y

LINES

Parallel	Perpendicular	Transversal	Tangent

- In Geometry, always start with what _____.
- A straight line equals _____. All the way around equals _____.
- _____ and _____ is SAT language for _____.

ANGLES

Acute	Obtuse	Complimentary	Supplementary	Vertical	Right

Geometry Tip:

In any given geometry question, when you can, DRAW or EXTEND your lines to make the problem easier to see.

SAT Math: Triangles

Right Triangles	30-60-90 Triangles	45-45-90 Triangles	Equilateral Triangle	Isosceles Triangle

1. Interior Angles of a triangle must always equal _____.
2. _____ triangles do not have an easily defined height. **Example:**
   The height of a triangle is always drawn from the highest point of the triangle
   _____to the base.
3. Isosceles triangles have two sides that are the same AND two angles that are the same.
4. Equilateral triangle is SAT speak for _____
   Explain why:
   (if two angles are the same they create lengths of sides on a triangle that is the same)
5. **Triangle Inequality Rule:**
   Any side of a triangle must be greater than the _____ and less than the
   _____ of the other two sides of the triangle.
6. **Proportionality of Triangles Rule:**
   In any triangle, the _____ is opposite the largest angle.
   The _____ side is opposite the smallest angle.
   Sides with the _____ length have opposite angles with the
   _____measure.

Trigonometry

In Trigonometry the relationships between (1) _____ and (2) _____ of (3) _____ can be written as ratios.

The following table displays three primary rations where Θ is the angle measure marked in the diagram. A mnemonic for these three ratios is: (4)_____
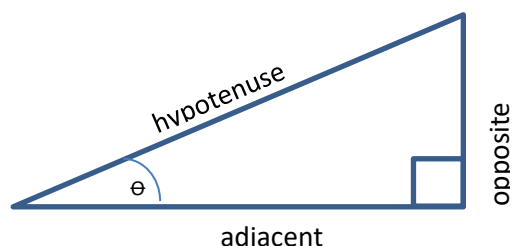
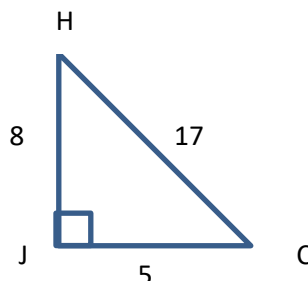| Trigonometric Ratio	Function	Ratio of Sides	SOHCAHTOA
Sine	sin Θ	opposite/hypotenuse	5)
Cosine	cos Θ	adjacent/hypotenuse	6)
Tangent	tan Θ	opposite/adjacent	7)

Practice Question

1a.) Right Triangle ▷ HJC is shown below, with side lengths as indicated.

What is the tangent of ⌐ C?

A) 5/8
B) 8/5
C) 5/17
D) 8/17
E) 17/8

1

If $5x + 6 = 10$, what is the value of $10x + 3$?

A) 4
B) 9
C) 11
D) 20

2

$$x + y = 0$$
$$3x - 2y = 10$$

Which of the following ordered pairs (x, y) satisfies the system of equations above?

A) $(3, -2)$
B) $(2, -2)$
C) $(-2, 2)$
D) $(-2, -2)$

3

A landscaping company estimates the price of a job, in dollars, using the expression $60 + 12nh$, where n is the number of landscapers who will be working and h is the total number of hours the job will take using n landscapers. Which of the following is the best interpretation of the number 12 in the expression?

A) The company charges $12 per hour for each landscaper.
B) A minimum of 12 landscapers will work on each job.
C) The price of every job increases by $12 every hour.
D) Each landscaper works 12 hours a day.

4

$$9a^4 + 12a^2b^2 + 4b^4$$

Which of the following is equivalent to the expression shown above?

A) $(3a^2 + 2b^2)^2$
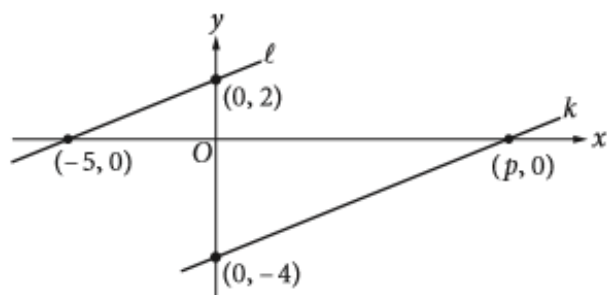B) $(3a + 2b)^4$
C) $(9a^2 + 4b^2)^2$
D) $(9a + 4b)^4$

5

$$\sqrt{2k^2 + 17} - x = 0$$

If $k > 0$ and $x = 7$ in the equation above, what is the value of k ?

A) 2
B) 3
C) 4
D) 5

6

In the xy-plane above, line ℓ is parallel to line k. What is the value of p ?

A) 4
B) 5
C) 8
D) 10

7

If $\dfrac{x^{a^2}}{x^{b^2}} = x^{16}$, $x > 1$, and $a + b = 2$, what is the value of $a - b$?

A) 8
B) 14
C) 16
D) 18

8

$$nA = 360$$

The measure A, in degrees, of an exterior angle of a regular polygon is related to the number of sides, n, of the polygon by the formula above. If the measure of an exterior angle of a regular polygon is greater than $50°$, what is the greatest number of sides it can have?

A) 5
B) 6
C) 7
D) 8

1

A musician has a new song available for downloading or streaming. The musician earns $0.09 each time the song is downloaded and $0.002 each time the song is streamed. Which of the following expressions represents the amount, in dollars, that the musician earns if the song is downloaded d times and streamed s times?

A) $0.002d + 0.09s$

B) $0.002d - 0.09s$

C) $0.09d + 0.002s$

D) $0.09d - 0.002s$

2

A quality control manager at a factory selects 7 lightbulbs at random for inspection out of every 400 lightbulbs produced. At this rate, how many lightbulbs will be inspected if the factory produces 20,000 lightbulbs?

A) 300

B) 350

C) 400

D) 450

3

$$\ell = 24 + 3.5m$$

One end of a spring is attached to a ceiling. When an object of mass m kilograms is attached to the other end of the spring, the spring stretches to a length of ℓ centimeters as shown in the equation above. What is m when ℓ is 73 ?

A) 14

B) 27.7

C) 73

D) 279.5

Questions 4 and 5 refer to the following information.

The amount of money a performer earns is directly proportional to the number of people attending the performance. The performer earns $120 at a performance where 8 people attend.

4

How much money will the performer earn when 20 people attend a performance?

A) $960

B) $480

C) $300

D) $240

5

The performer uses 43% of the money earned to pay the costs involved in putting on each performance. The rest of the money earned is the performer's profit. What is the profit the performer makes at a performance where 8 people attend?

A) $51.60

B) $57.00

C) $68.40

D) $77.00

6

When 4 times the number x is added to 12, the result is 8. What number results when 2 times x is added to 7?

A) -1

B) 5

C) 8

D) 9

7

$$y = x^2 - 6x + 8$$

The equation above represents a parabola in the xy-plane. Which of the following equivalent forms of the equation displays the x-intercepts of the parabola as constants or coefficients?

A) $y - 8 = x^2 - 6x$

B) $y + 1 = (x - 3)^2$

C) $y = x(x - 6) + 8$

D) $y = (x - 2)(x - 4)$

Watch out for the WRONG ANSWER TRAPS!!!

NIP   Answer Choices that have information that is <u>Not in the Passage/Part</u>
        could be true, but still Not in the Passage or Part

ATM   Answer Choices are <u>Extreme or Assume too Much</u>
        uses words like never/always

RF   Answer Choices that are like <u>Rotten Fruit</u>
        answer choice looks good but has one "rotten" part,

TBTN   Answer Choices that are <u>Too Broad/ Too Narrow</u>
        Especially for Main Idea, or Specific Detail Questions

TRU   Answer Choices are <u>True but don't answer the question.</u>
        This information may be elsewhere in the passage

Trigonometry:

1) sides   2)angles   3) right triangles   4) SOHCAHTOA   5)sin= O/H
6) cos= A/H   7)tan= O/A   1a) B

Practice Set 1:
Reading Test
43.C   44.B   45.D   46.C   47.A   48.B   49.D   50.D   51.D   52.A

Practice Set 2:
Writing and Language Test
23. A   24.B   25.B   26.A   27.D   28.A   29.C   30.C   31.D   32.B   33.D

Practice Set 3:
Math: No Calculator
1.C   2.B   3.A   4.A   5.C   6.D   7.A   8.C

Practice Set 4:
Match: Calculator
1.C   2.B   3.A   4.C   5.C   6.B   7.D