

SAT Student Manual 2



ASC English

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Introduction

ASC's SAT Advanced course is designed to help students master the most difficult topics on the SATs. By focusing on and practicing these topics, advanced SAT students can improve their SAT scores.

The SAT is composed of ten sections - a 25-minute essay, six 25-minute sections, two 20-minute sections, and one 10-minute section. Total testing time is 3 hours and 45 minutes. The breakdown of each section is as follows:



Topic	Testing Time	Number of Questions	Skills Tested
Critical Reading	Two 25 minute sections and one 20 minute section	67 Questions in total: 19 sentence completions and 48 passage based questions	Vocabulary, sentence logic, answering questions and making inferences about a text
Math	Two 25 minute sections and one 20 minute section	54 Questions in total: 44 multiple choice and 10 student-produced responses	Integrating and applying mathematical concepts, including algebra, functions, geometry, probability, statistics, and data interpretation
Writing Multiple Choice	One 25 minute section and one 10 minute section	49 Questions in total: 25 Improving sentences, 18 identifying sentence errors, and 6 improving paragraph questions	Sentence structure and grammar, coherence and cohesion
Writing Essay	25 minutes	Write one essay on a given topic	Writing and analysis skills

You should also be aware that SAT test includes one 25-minute section called the experimental section. It can be in critical reading, math, or writing and is used by the testmakers to design and test questions for future exams. This section does not contribute to your SAT score, however, you won't know which section is the experimental section, so you should try your best on every part of the exam.

SAT Scoring

Each section (critical reading, math, and writing) is scored by giving you a raw score and then converting that to a scaled score. The raw score is the number of questions that you got correct minus one-fourth of the questions that you got wrong. Leaving a question blank does not affect your score. This equation can be seen as:

$$\text{Raw Score: } \underline{\quad} \text{ correct} - 0.25 (\underline{\quad}) \text{ incorrect} = \underline{\quad}$$

The raw score is then converted to a scaled score between 200 and 800 points. It should be



noted that in the writing section, essay score is also factored into your scaled score. Additionally, in the math section, correct student-produced responses (grid ins) are worth one raw score point whereas incorrect student-produced responses (grid ins) do not affect your score.

This brings us to two very important questions:

1. If wrong answers lead to subtracting points, but a blank does not affect my score, should I guess?

The answer is, it depends. If you are able to eliminate at least one choice, then the long run average results in the same or greater raw score than if you didn't guess. This also depends on the individual test taker's personality. Someone that tends to be more cautious might be tempted to leave a lot more blank than one should. On the other hand, a person that is more risk-inclined may have a tendency of not leaving enough blank. Therefore, if you are unsure, then you should complete a practice section leaving a few blank and guessing on the majority of questions that you don't know for sure and find your raw score using the equation above. Then, calculate what your raw score would have been had you left more of the ones that you were unsure of blank. Use whatever strategy gives you the highest score.

2. What is a “good” SAT score?

Although many people know that the coveted 2400 is a perfect score on the SATs, many students and parents wonder what other scores are classified as “good”. This question does not have a simple answer because a “good” SAT score for one college might not be “good” for a more competitive school. For example, the top schools in the country tend to look for scores at least in the 700s in each of the three sections (2100 total), whereas smaller, less competitive schools will accept lower scores. While it is true that the higher a student's SAT scores are, the more opportunities will be available to a student, there are schools for students with a large range of SAT scores. Fortunately, there are tools to help students figure out their SAT score goal and what is a “good” score for their ability level and the colleges that they are hoping to gain acceptance from.

So what is a good score on the SAT? The answer is: it depends on what schools and, in some cases, what programs of study a student is aiming for. Therefore, first step in deciding what a good score is would be to decide what colleges or universities interest you and come up with a few ideas of what you might want to study. Next, just check online what scores your ideal school is looking for and make it your goal to score a bit higher just so you stand out among all the other applicants. Oftentimes, the university's website will contain the average SAT score and GPA for admitted applicants. They might also give a 25% to 75% percentile scores. Someone in this range might be a good match for the school, whereas it might be more difficult for someone with SAT scores than the 25% percentile to be admitted. The College Board (the same company that makes the SATs) also has an online program called “My College Matches” to help students identify colleges that might be good for them sorted by individual factors such as SAT



score. Identifying potential areas of study could also help to put SAT scores in context. For example, a student who scores a 2100 by getting 800s on the verbal and reading section and a 500 on math might make it into a writing program at a top university but would not be considered by a high ranking technical institution. Every school and every student's situations are different.



About the Critical Reading Section

The critical reading section is composed of two parts, sentence completions and passage-based reading. The sentence completion focuses on vocabulary and sentence logic in order to select the word that best fits in the blank within the sentence. It is imperative that students learn to detect the types of sentence completions and the clues given in each of the sentences which will lead to the correct answer. For the passage-based reading, students will learn the types of passages and questions tested as well as strategies for detecting the correct answer and the reasons that incorrect answers are incorrect.

About the Math Section

The following topics are tested on the SAT math section: number and operations, algebra and functions, geometry and measurement, and data analysis, statistics, and probability questions.

Below is a list from the College Board of each topic tested in more detail:

Number and Operations (20 – 25% of the test)

- Arithmetic word problems (including percent, ratio, and proportion)
- Properties of integers (even, odd, prime numbers, divisibility, and so forth)
- Rational numbers
- Sets (union, intersection, elements)
- Counting techniques
- Sequences and series (including exponential growth)
- Elementary number theory

Algebra and functions questions (35 – 40% of the test)

- Substitution and simplifying algebraic expressions
- Properties of exponents
- Algebraic word problems
- Solutions of linear equations and inequalities
- Systems of equations and inequalities
- Quadratic equations
- Rational and radical equations
- Equations of lines



-
- Absolute value
 - Direct and inverse variation
 - Concepts of algebraic functions
 - Newly defined symbols based on commonly used operations

Geometry and measurement questions (25 – 30% of the test)

- Area and perimeter of a polygon
- Area and circumference of a circle
- Volume of a box, cube, and cylinder
- Pythagorean theorem and special properties of isosceles, equilateral, and right triangles
- Properties of parallel and perpendicular lines
- Coordinate geometry
- Geometric visualization
- Slope
- Similarity
- Transformations

Data analysis, statistics, and probability questions (10 – 15% of the test)

- Data interpretation (tables and graphs)
- Descriptive statistics (mean, median, and mode)
- Probability

You will note that there is no pre-calculus or advanced trigonometry (sine, cosine, tangent, etc.), so if you haven't taken these classes, don't worry about it. However, you should be cognizant of when you took what classes and, consequently how much time that you will need to focus on each topic. For example, an 11th grader that took geometry in 9th grade may need to spend more time reviewing geometry than a 11th grader that is currently in a geometry class.

About the writing section

The writing section is composed of two sections, the 25 minute essay and multiple choice questions. Students will learn what the SAT graders are looking for and also practice with timing, brainstorming, and writing so that they can get a perfect score on the essay. Students will also be exposed to the three types of writing multiple choice questions– sentence improvements, sentence errors, and paragraph improvements as well as the grammatical or other writing concepts taught in this section.



SAT Homework Agenda

Date Due	SAT Verbal	SAT Math



PART I

SAT MATH

General Strategies for SAT Math

The SAT math section contains vocabulary terms used in your typical algebra or geometry math class. A list of the most commonly used terms are below:

Constant	A value represented by a variable that will not change
Expression	A combination of terms joined by operations
Equation	Two sets of expressions joined by an equal sign
Distributed equally	To divide evenly among
Set	A group whose members are referred to as the set's elements
Integers	The set of numbers consisting of positive and negative whole numbers, as well as 0
Domain	A function's set of all possible input values (often x values)
Range	A function's set of all possible output values (often y values)
Average/ Arithmetic mean	The sum of all values divided by the number of values
Median	The center value of an ordered set; If the set contains an even number of elements, it is the average of the two central terms
Mode	The most frequent appearing member of a set

1 General Strategies for SAT Algebra

It can be difficult to know every concept on the SAT, which topic(s) is best used to solve the problem. Therefore, if you get to a problem that you don't know how to solve, then you can use the following strategies to help you find the right answer. They spell the acronym PUFS.

Plug in real numbers

Use the answer choices

Formulas

See the problem

.....

SAT Math Strategy 1: Plug in real numbers

Many SAT problems are made unnecessarily tricky by using variables instead of numbers.

1. Assign each variable a unique value (for example, if there are variables a , b , and c in the problem, make $a = 2$, $b = 3$, $c = 5$). These numbers should be easy to work with. If you are using percentages, it is recommended to use 100% for the base variable because percentages are out of 100.
2. Solve the problem with these values instead of variables.
3. If necessary, translate the numbers back to decimals, percentages, fractions, etc

Try It: If a is $1/3$ of b and b is $2/5$ of z and $z > 0$, then a is what percentage of z ?



SAT Math Strategy 2: Use the answer choices

If the question is multiple choice, then you may be able to plug in the answer choices into the question to see which answer choice gives you the correct answer.

Hint: It is suggested in SAT literature that if you try this approach, that you should start with answer choice C and work outwards or answer choice E and go backwards from E to A because the SAT will rarely make problems that can be solved with this strategy to have answer choice A.

Try It: What is the smallest of 5 consecutive even integers if the sum of these integers equals 300?

- (A) 50
 - (B) 52
 - (C) 54
 - (D) 56
 - (E) 58
-

SAT Math Strategy #3: Quickly recall and write down general formulas

Look at the formulas that are given on the SAT and memorize the ones that aren't. Fill in the formulas below that are not given on the SAT test:

Formula for directly proportional:

Formula for inversely proportional:

Formula for average:

Formula for slope:

Formula for equation of a line:



1. SAT Algebra

When you get to a problem that calls for a topic with a formula associated with it, write the general formula in words on your test booklet. For example, if there was a question that has to do with averages we would write down its equation. Then, rewrite the formula with the numbers or variables from the problems filled in.

Try it: 30% of the students in Ms. Lee's class had an average test score of 78 points. The rest of the class had an average test score of 84 points. What is the average test score for all students in Ms. Law's class?

- (A) 79.5
 - (B) 81.0
 - (C) 82.2
 - (D) 83.0
 - (E) 83.1
-

SAT Math Strategy 4: See and solve the problem using visuals like diagrams, charts, or tables

Drawing a diagram, table, or chart can help you to visualize the problem, particularly for geometric and word problems. They don't need to be detailed or drawn perfectly-just enough to for you to see the information that you currently have and what you need to solve for.

Try It: 5 students are going to be lined up against a wall. In how many different ways can the 5 students be arranged in a row?

- (A) 5
- (B) 24
- (C) 25
- (D) 100
- (E) 120



Numbers and Operations

The SAT Math section relies heavily on you knowledge of the real numbers and their properties. The real numbers can be broken up into two categories: rational numbers and irrational numbers. *Rational numbers* are all numbers that can be expressed as any whole number divided by any other non-zero whole number. Some examples are -1 , 0.75 , $\frac{2}{3}$, and $-1.\overline{125}$. *Irrational numbers* are all numbers that cannot be expressed as a fraction of whole numbers. They are non-repeating, never ending decimals. For example, $\sqrt{2}$, $1.2345\dots$ are all irrational numbers. The properties of the real numbers to bare in mind are:

Properties of the Real Numbers

For all real numbers a , b , and c ,

$a + b = b + a$ $ab = ba$	Commutative Property
$a + (b + c) = (a + b) + c$ $a(bc) = (ab)c$	Associative Property
$a(b + c) = ab + ac$	Distributive Property
$a \cdot 1 = a$	Multiplicative Identity
$a + 0 = a$	Additive Identity
$a + (-a) = 0$	Additive Inverse
$a \cdot \frac{1}{a} = 1$	Multiplicative Inverse



1 Arithmetic Word Problems

General Equation

Fraction Rules

$$\frac{a \cdot c}{b \cdot c} = \frac{a}{b}$$

$$\frac{a}{b} \cdot \frac{b}{d} = \frac{ab}{cd}$$

$$\frac{a}{c} \pm \frac{b}{c} = \frac{a \pm b}{c}$$

$$a \cdot \frac{b}{c} = \frac{ab}{c}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$$

$$\frac{a}{b} \pm \frac{c}{d} = \frac{ad \pm bc}{bd}$$

Example 1: If 3 gallons of water fill 2 fish bowls, how many gallons will fill 9 fish bowls?

Example 2: If y varies directly as x , and $y = 6$ when $x = 9$, what is the value of y when $x = 12$?

Example 3: Terri rides her bike every day on her way to school. On a sunny day, Terri can make the 2.6 mile trip in half of an hour at a constant pace. When it rains, Terri's speed drops by 1 mile per hour. If Terri's trip is the same distance in the rain, what total time it takes her to get to school?



MEDIUM

1. If the side length, s , of a square is increased by n , what is the ratio of the area of the new square to the old?

Equation/Strategy: _____

Solve:

- (a) $n^2 : 1$
(b) $n^2 : s^2$
(c) $s^2 : n^2$
(d) $s^2 : (s + n)^2$
(e) $(s + n)^2 : s^2$
-

2. From January to March, coats drop in price by 10% each month from the month before. Which ratio represents the cost of the jacket from January to March?

Equation/Strategy: _____

Solve:

- (a) $100 : 81$
(b) $10 : 81$
(c) $10 : 9$
(d) $9 : 1$
(e) $11 : 9$

ADVANCED

3. If P varies jointly as T and inversely as V , and $P = 5$ when $V = 3$, what is the value of V when P doubles and T remains unchanged?

Equation/Strategy: _____

Solve:

- (a) 1.5
(b) 2.5
(c) 6
(d) 10
(e) 12
-

4. A jar contains D jellybeans. If there are A red jellybeans, B green jellybeans, and C orange jellybeans. What proportion of the jellybeans are red or orange?

Equation/Strategy: _____

Solve:

- (a) $\frac{A + C}{A + B + C}$
(b) $\frac{A + C}{D}$
(c) $\frac{D - (A + C)}{D}$
(d) $\frac{D - B}{A + B + C}$
(e) $\frac{D - B}{D}$



2 Rational Numbers

General Equation

Rational Number

Definition: A *rational number* is any number of the form $\frac{a}{b}$ where a and b are integers and $b \neq 0$. All terminating (ending) decimals and repeating decimals can be expressed as a rational number.

Example 1: If $\frac{x}{3} = \frac{y}{5}$, write an inequality stating the relationship between x and y .

Example 2: If the number of microbes in a petri dish is reduced by a factor of one-third after each day, how many days will it take for the population to be less than 10% of the original amount?

Example 3: The batting average of a baseball player is given by the proportion of hits versus the number of times at bat. If Stanley has a batting average of 0.32 and had 24 hits in one season, what is the number of times Stanley was at bat?



MEDIUM

1. If the odds of choosing a red marble from a bag of marbles is 0.3. If the odds of choosing n red marbles is 0.027, what is the value of n ?

Equation/Strategy: _____

Solve:

- (a) 2
(b) 3
(c) 6
(d) 7
(e) 9
-

2. One-third of Ms. Boyd's class takes French while four-fifths takes Spanish. How many students are taking both French and Spanish if all students are taking a language class?

Equation/Strategy: _____

Solve:

- (a) $1/15$
(b) $2/15$
(c) $1/5$
(d) $1/3$
(e) $2/3$

ADVANCED

3. Bob is two-thirds the age of his sister Sally. If Sally is four-thirds times the age of their sister, Patricia. If Patricia is 3 years older than Bob, what is Sally's age?

Equation/Strategy: _____

Solve:

- (a) 20
(b) 24
(c) 28
(d) 32
(e) 36
-

4. From 1970 to 2010, the population of US living on the coast has increased by approximately 40%. If approximately 40% of the total population of the USA lives on the coast in 2010 and the population in 2010 is 308 million people, what is the population (in millions) of the US in 1970?

Equation/Strategy: _____

Solve:

- (a) 49
(b) 77
(c) 88
(d) 193
(e) 220



3 Sequences and Series

General Equation

Sequence and Series Formulas

Arithmetic Sequence

$$a_n = a_1 + d(n - 1)$$

Geometric Sequence

$$a_n = a_1 r^{n-1}$$

Arithmetic Series

$$S = \frac{n(a_1 + a_n)}{2}$$

Geometric Series

$$S = \frac{a_1(1 - r^n)}{1 - r}$$

where a_1 is the first term of the sequence, n is the number of terms of a given sequence, a_n is the n th term of the sequence, d is the common difference between consecutive terms $(a_n - a_{n-1})$, and r is the common ratio between consecutive terms $\left(\frac{a_n}{a_{n-1}}\right)$.

Example 1: Shelly is preparing to run for a marathon. If Shelly starts running on the first week with 1 kilometer, and doubles the number of kilometers every week, how many miles will she run on the sixth week?

Example 2: Jenny receives a weekly allowance of \$15 and is saving up to buy a new laptop that costs \$450. If she has \$100 saved up already, how many weeks will it take her to have enough for the laptop?

Example 3: A ball is dropped from a height of 1 meter and bounces a height of two-thirds of the previous bounce with every consecutive bounce. What is the total distance the ball has traveled after 5 bounces?



MEDIUM

1. Tom is doing a cross country bike ride. On the first day, Tom rode 5 miles. If he decides to ride an additional 20% every day, approximately how long will he have ridden on day 8?

Equation/Strategy: _____

- (a) 13 miles
- (b) 14 miles
- (c) 18 miles
- (d) 19 miles
- (e) 20 miles

Month	2	5	7
Height	5	9.5	11.5

2. Eduardo purchases a potted plant to grow at home. The height is recorded (in inches) every month. If the rate of growth is constant, at what height did Eduardo buy the plant?

Equation/Strategy: _____

- (a) 2 in
- (b) 3 in
- (c) 3.5 in
- (d) 4 in
- (e) 4.5 in

ADVANCED

3. A spherical balloon deflates at a rate such that the volume is cut in half every 2 minutes. If r is the initial radius, which expression represents the radius after 8 minutes?

Equation/Strategy: _____

Solve:

- (a) $r/2$
- (b) $r/4$
- (c) $r/8$
- (d) $r/16$
- (e) $r/32$

4. A guitar string is plucked and the distance between the highest point and the lowest point of the first oscillation is 256 millimeters. If the distance the string travels is reduced by one-quarter with each oscillation, how many oscillations will it take for the string to have traveled a total distance of 700 millimeters?

Equation/Strategy: _____

Solve:

- (a) 2.5
- (b) 3
- (c) 3.5
- (d) 4
- (e) 5



4 Elementary Number Theory

General Equation

Quotient and Divisor Theorem

For all integers a and b ,

$$a = q \cdot b + r$$

where q is the quotient and r is the remainder such that $r < b$.

Example 1: Gumdrops come in bags of 60. Mr. Lee wants to buy enough bags so that he has a perfect square number of gumdrops. What is the least number of bags Mr. Lee will need to buy?

Example 2: The sum of the angles of a regular polygon is given by the equation $S(n) = 180(n - 2)$ where n is the number of sides. How many sides does the smallest regular polygon have if it is the smallest regular polygon possible such that each individual angle is over 120° ?

Example 3: A group of 10 students participate in a math competition. The students are required to shake hands with all other participants in the competition. If each handshake between two people is counted only once, how many distinct handshakes are there overall?



MEDIUM

1. There are n jellybeans in a jar. The number of jellybeans can be separated into groups of 24 or groups of 42. What is the least possible number of jellybeans in the jar?

Equation/Strategy: _____

Solve:

- (a) 126
 - (b) 168
 - (c) 252
 - (d) 504
 - (e) 1008
-

2. A full revolution of the hour hand around the face of a clock corresponds to 12 hours. If the hour hand starts at 12:00 AM and completes 6.75 revolutions, what is the current time?

Equation/Strategy: _____

Solve:

- (a) 3:00 AM
- (b) 9:00 AM
- (c) 3:00 PM
- (d) 6:00 PM
- (e) 9:00 PM

ADVANCED

3. If f is the number of faces of a cube, v is the number of vertices, and e is the number of edges, what is the value of $v - e + f$?

Equation/Strategy: _____

Solve:

- (a) 0
 - (b) 1
 - (c) 2
 - (d) 6
 - (e) 12
-

4. Ms. Rizzo has a box of sand in her classroom. If the value of the volume is a positive integer greater than 1 in³ that is both a perfect square and a perfect cube, what is the surface area of the closed box?

Equation/Strategy: _____

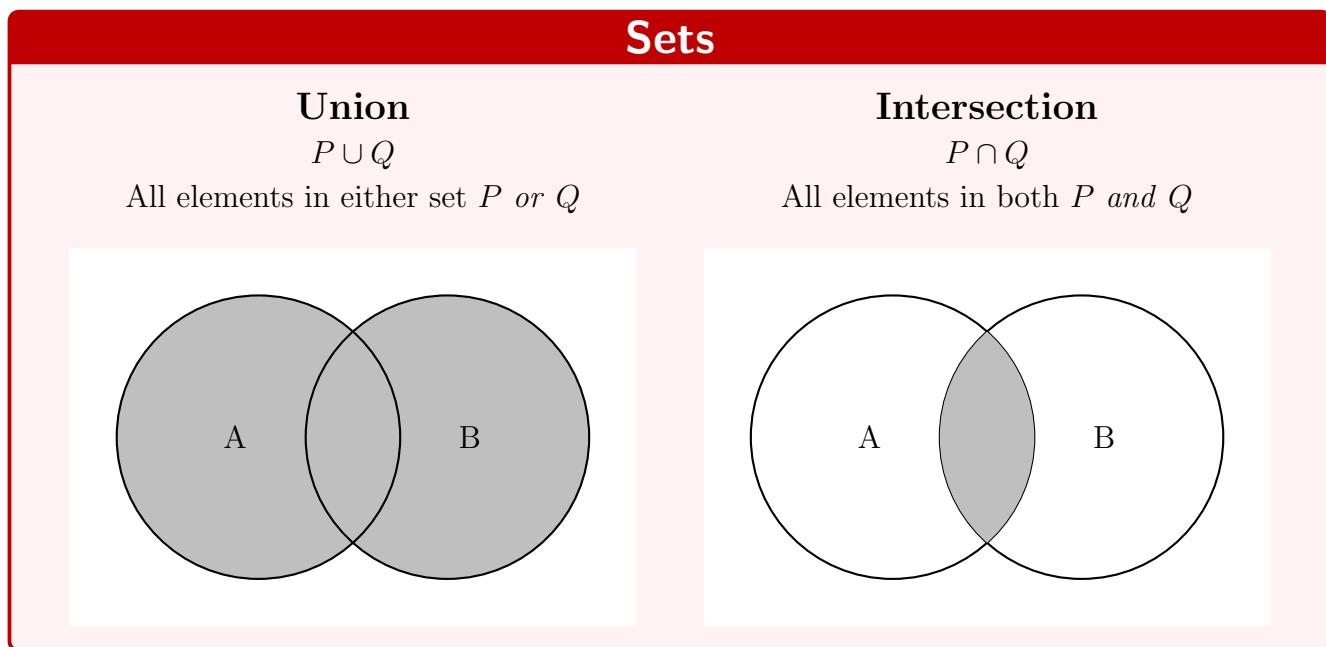
Solve:

- (a) 6
- (b) 32
- (c) 64
- (d) 72
- (e) 96



5 Sets

General Equation



Example 1: Martha's has 15 cupcakes that are vanilla frosted and 10 cupcakes that are chocolate frosted. If two-thirds of Martha's cupcakes are both vanilla and chocolate frosted, how many cupcakes have vanilla frosting?

Example 2: In the set of integers from 1 to 100 inclusively, how many numbers are divisible by 3 or 5 but not both?

Example 3: Mr. Dropal has 16 students in his class. There are 10 male students. Half of all students are taking only Chinese and one-quarter are taking Chinese and French. If the class must take either French or Chinese, what proportion represents the maximum number of females taking only French?

MEDIUM

1. Mr. Carter has a garden of yellow, white, and red rose bushes. The proportion of red rose bushes to all other bushes is 0.4. When he buys an additional 4 red rose bushes, the proportion increases to 0.5. How many non-red rose bushes did Mr. Carter originally have?

Equation/Strategy: _____

Solve:

- (a) 8
 - (b) 12
 - (c) 20
 - (d) 24
 - (e) 36
-

2. The average (arithmetic mean) of a set of 5 positive integers is 10 and the median is 10. What is the largest possible value of the largest member of the set?

Equation/Strategy: _____

Solve:

- (a) 10
- (b) 50
- (c) 22
- (d) 37
- (e) 40

ADVANCED

3. Helen has a box of 40 chocolates. The proportion cherry filled or coconut chocolates is 0.3, whereas the proportion of coconut or creme filled is 0.4. If the number of creme filled is twice the number of cherry filled and there is at least one cherry filled, what proportion of the box is coconut?

Equation/Strategy: _____

Solve:

- (a) 0.075
 - (b) 0.1
 - (c) 0.15
 - (d) 0.2
 - (e) 0.25
-

4. When a positive integer n is divided by 4, the remainder is 3. When n is divided by 5, the remainder is 1. How many values of n are there from 1 to 40?

Equation/Strategy: _____

Solve:

- (a) 0
- (b) 1
- (c) 2
- (d) 3
- (e) 4



6 Counting Techniques

General Equation

Permutations and Combinations

When choosing r items from n items,

Permutations	Combinations
When order matters	When order does not matter
<i>Without Repetition</i> ${}_nP_r = \frac{n!}{(n-r)!}$	<i>Without Repetition</i> ${}_nC_r = \frac{n!}{r!(n-r)!}$
<i>With Repetition</i> n^r	<i>With Repetition</i> $\frac{(n+r-1)!}{r!(n-1)!}$

Example 1: Mandy is throwing an ice cream party and has 3 flavors of ice cream and 4 different toppings. How many different combinations can her guests make?

Example 2: Jerry is making a sundae with 3 scoops of ice cream. If he has 5 flavors of ice cream, how many different combinations can Jerry make if he can only use each flavor once?

Example 3: If a four-digit pin number contains the digits 0 to 9 where no digit can be repeated more than twice, how many different combinations for pin numbers are possible?



MEDIUM

1. If set A contains all even integers under twenty and set B contains all even prime numbers, then the set of common elements between set A and set B is

Equation/Strategy: _____

Solve:

- (a) {}
- (b) {0}
- (c) {2}
- (d) {0, 2}
- (e) All even numbers

2. If a four point star has 8 vertices, and an eight point star has 16 vertices, how many vertices does a 10 point star have?

Equation/Strategy: _____

Solve:

- (a) 12
- (b) 16
- (c) 20
- (d) 24
- (e) 32

ADVANCED

3. A number of volleyballs compete in a tournament. If each team must play one another, and there are a total of 120 matches, how many teams competed?

Equation/Strategy: _____

Solve:

- (a) 5 teams
- (b) 6 teams
- (c) 7 teams
- (d) 8 teams
- (e) 12 teams

4. An equilateral triangle is divided so that the midpoint of each line is the vertex of an inscribed triangle. If the process continues, how many triangles will there be after n divisions?

Equation/Strategy: _____

Solve:

- (a) 2^n
- (b) 3^n
- (c) 4^n
- (d) $4n$
- (e) $8n$



4

Algebra and Functions: Part I

Functions are a big part of the SAT math section. In general, we use the symbols $f(x)$ (or y) to indicate a function of the input x . A *function* is defined as a set of rules which maps to each input one and only one output. Figure 4.1 below shows a mapping between two sets where each input has exactly one output. Figure 4.2 is an example of a mapping between two sets that are not functions because $f(a)$ has two outputs: 2 and 4.

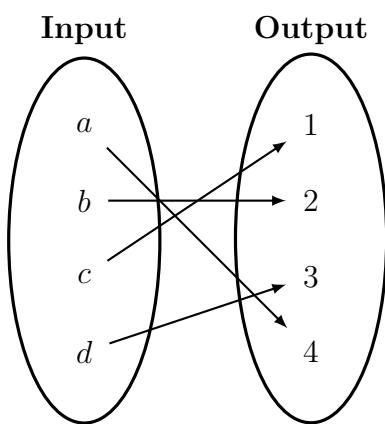


Figure 4.1: A function

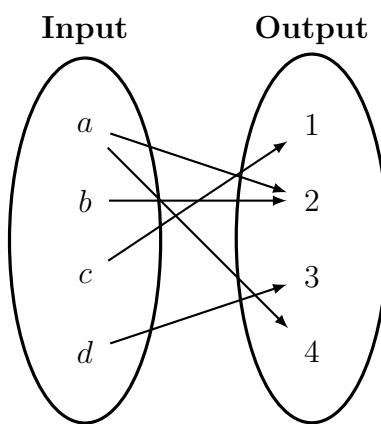


Figure 4.2: Not a function

1 Substitution and Simplifying Algebraic Expressions

General Equation

Algebraic Properties

For all real numbers a , b , and c ,

Distributive Property

$$a(b + c) = ab + ac$$

Transitive Property

If $a = b$ and $b = c$, then $a = c$

Example 1: If Sally has 6 boxes and each box has 12 books, how many books does Sally have?

Example 2: Chase and Jill both collect stamps. If Jill has six less than twice the number of stamps than Chase does, how many stamps does Jill have if Chase has 24 stamps?

Example 3: Townsville High School has 30 classrooms, each with 15 desks. If 80% of desks are filled in 90% of the classrooms and the other 10% of the classrooms are 100% full, how many students attend the school?



MEDIUM

1. Chris has a collection of 120 records which consists of jazz, blues, and classical records. If one-fourth of the records are jazz and one-third of the records are blues, how many of the records are classical?

Equation/Strategy: _____

Solve:

- (a) 30
 - (b) 40
 - (c) 50
 - (d) 60
 - (e) 70
-

2. The density, d , of an object is the ratio of its mass to its volume. If the volume of an object is halved and the mass is doubled, which expression represents the new density in terms of d ?

Equation/Strategy: _____

Solve:

- (a) $1/4d$
- (b) $1/2d$
- (c) d
- (d) $2d$
- (e) $4d$

ADVANCED

3. Tommy is on the outer edge of a merry-go-round that moves at a constant speed. If r is Tommy's distance from the center, and the merry-go-round makes m full cycles during n minutes, which expression represents Tommy's distance traveled in 1 hour?

Equation/Strategy: _____

Solve:

- (a) $\frac{mr\pi}{30n}$
 - (b) $\frac{mr^2\pi}{30n}$
 - (c) $\frac{120r\pi}{mn}$
 - (d) $\frac{120mr^2\pi}{n}$
 - (e) $\frac{120mr\pi}{n}$
-

4. Bunny Slopes Co. is having a sale on winter wear of 20% off. Tracy buys a pair of ski goggles and receives an additional 10% off of the sale price. If the final cost of the goggles is \$90, how much did Tracy save?

Equation/Strategy: _____

Solve:

- (a) 22
- (b) 25
- (c) 35
- (d) 38
- (e) 125



2 Solutions of Linear Equations and Inequalities

General Equation

***y*–intercept**

The ***y*–intercept** of a line is the point where the graph of the line intersects the *y*–axis. Its coordinate is given by the point $(0, b)$ where b is determined by the equation of the line $y = mx + b$.

***x*–intercept**

The ***x*–intercept** of a line is the point where the graph of the line intersects the *x*–axis. Its coordinate is given by the point $(-\frac{b}{m}, 0)$ where m and b are determined by the equation of the line $y = mx + b$.

Example 1: If the cost of a cab has a base fare of \$2.50 and \$0.40 per mile, how much does a 10 mile ride cost?

Example 2: The cost of tablet devices has dropped an average of 3% of the original price every quarter of a year. After how long will the cost of a tablet be less than half of the original cost?

Example 3: The population of Summerville increases at a constant annual rate. The population was recorded in January 2008 as 362,000 and again in July 2010 as 384,000. What is the annual rate of growth of the population?



MEDIUM

1. The speed of a minute hand moves at a constant speed of $1/60$ rpm (revolutions per minute). If the current time is 4:00 pm and the minute hand has made 1.75 revolutions, what time was it first recorded at?

Equation/Strategy: _____

Solve:

- (a) 2:15 pm
 - (b) 2:25 pm
 - (c) 2:45 pm
 - (d) 3:15 pm
 - (e) 3:25 pm
-

2. Both Terri and Sam are shorter than Sissy, and Sissy and Hector is shorter than Roy. Which of the following must be true?

- I. Terri is shorter than Sam
- II. Sissy is shorter than Hector
- III. Sam is shorter than Roy

Equation/Strategy: _____

Solve:

- (a) I only
- (b) II only
- (c) III only
- (d) I and II
- (e) II and III

ADVANCED

3. A chemical reaction results in the release the constant release of 70 joules of energy over a 14 minute period. If the total initial amount of energy in the system was 370 joules, how long will it take for the system to release all of its energy?

Equation/Strategy: _____

Solve:

- (a) 1 hour 10 minutes
- (b) 1 hour 14 minutes
- (c) 1 hour 17 minutes
- (d) 1 hour 24 minutes
- (e) 5 hours 17 minutes



2. Linear Equations

4. The number of students at Mainsville School with cellphones increases at a constant rate of n students per year. If the number of students with cellphones in January 2010 is 200 and the population of the student body is p , which expression represents the proportion of students with cellphones after m months?

Equation/Strategy: _____

Solve:

(a) $\frac{mn}{p + 200}$

(b) $\frac{mn}{p - 200}$

(c) $\frac{mn + 200}{p}$

(d) $\frac{mn + 2400}{p}$

(e) $\frac{mn + 2400}{12p}$



3 Properties of Exponents

General Equation

The Laws of Exponents

For all values of a , b , m , and n ,

$$a^m \cdot a^n = a^{m+n}$$

$$(ab)^m = a^m \cdot b^m$$

$$a^{-n} = \frac{1}{a^n}$$

$$\frac{a^m}{a^n} = a^{m-n}$$

$$(a^m)^n = a^{mn}$$

$$a^0 = 1 \text{ if } a \neq 0$$

Example 1: There are 1000 millimeters in one meter and 1000 meters in one kilometer. How many times larger is a kilometer than a millimeter?

Example 2: A pallet contains 5 rows of 5 columns of boxes, each column 5 boxes high. How many boxes does the pallet contain?

Example 3: The intensity of a sound is inversely proportional to the square of your distance from the source of the sound. If you are 6 times further away from a set of speakers at a concert as your friend, what is the ratio of the intensity of you to your friend?



3. Properties of Exponents

MEDIUM

1. A wooden block occupies a volume of $2a$. If the side length is an integer, what is the smallest possible value of a ?

Equation/Strategy: _____

Solve:

- (a) 2
 - (b) 3
 - (c) 4
 - (d) 8
 - (e) 16
-

2. The sum of the squares of two numbers, a and b , is equal to the square of the sum. Which of the following must be true?

- I. $a \cdot b = 0$
- II. $a = b$
- III. $(a + b)^3 = a^3 + b^3$

Equation/Strategy: _____

Solve:

- (a) I is true
- (b) II is true
- (c) III is true
- (d) I and II are true
- (e) I, II, and III are true

ADVANCED

3. The distance of an object falling from height is proportional to the square of time of the fall. If Betty drops a rock from the top of a building, the rock travels a distance of d^3 meters after time t seconds. If both the distance and the time are whole numbers and $d \neq t$, what is the least distance traveled by the rock?

Equation/Strategy: _____

Solve:

- (a) 2 m
 - (b) 4 m
 - (c) 8 m
 - (d) 32 m
 - (e) 64 m
-

4. A coat goes on sale x percent off of the original sale price every month. Which of the following expressions represents the amount taken off after m months?

Equation/Strategy: _____

Solve:

- (a) $n \left(\frac{x}{100} \right)^m$
- (b) $n \left[1 - \left(\frac{x}{100} \right)^m \right]$
- (c) $1 - \left(\frac{x}{100} \right)^m$
- (d) $n \left[1 - \left(\frac{x^m}{100} \right) \right]$
- (e) $n(1 - x^m)$



4 Systems of Equations and Inequalities

General Equation

Special Linear Relationships

Definition: A system of linear equations is said to be independent if there are 0 points of intersection between the graph of each equation (parallel lines).

A system of linear equations is said to be dependent if there is 1 point of intersection or infinitely many points of intersection (overlapping lines).

Two lines can only intersect 0, 1, or infinitely many times.

Example 1: Plane A and plane B are flying parallel to one another. If after 20 minutes, plane A has risen an altitude of 2000 m, how much has the altitude of plane B has risen in 30 minutes?

Example 2: When Johnny has x nickels and y dimes, his total is \$3. When he has y nickels and x dimes, his total increases by \$0.75. How many nickel and dimes did Johnny start off with?

Example 3: If the point $P(3, 1)$ is on a line that passes through the origin, what is the y -intercept of the perpendicular line that passes through P ?



4. System of Equations

MEDIUM

1. A coffee costs \$2.5 and a muffin costs \$3. If Tasha has \$11 and makes a purchase, what is the least amount of change she can receive?

Equation/Strategy: _____

Solve:

- (a) \$0.00
 - (b) \$0.50
 - (c) \$1.00
 - (d) \$1.50
 - (e) \$2.00
-

2. Stacy and Ann compete in a relay race that consists of 3 events, each with a highest possible score of 10 points. If Stacey earned 8 points and 9 points in the first two events, what is the least number of points she will need to earn in the third event to win if Ann received 23 points total?

Equation/Strategy: _____

Solve:

- (a) 6
- (b) 7
- (c) 10
- (d) 23
- (e) 24

ADVANCED

3. Two planes leave from the same terminal heading in the same direction. If plane A travels at 400 mph, and plane B travels 600 mph 4 hours after the departure of the first plane, how many hours from the departure of the first plane will the planes be adjacent?

Equation/Strategy: _____

Solve:

- (a) 2
 - (b) 8
 - (c) 4
 - (d) 12
 - (e) 48
-

4. A coyote is chasing a roadrunner in a parallel path. If the roadrunner and coyote are running at a constant rate of 30 mph and the roadrunner has a 20 mile gain on the coyote, how much faster will the coyote need to run if he is going to catch up to the roadrunner in 2 hours?

Equation/Strategy: _____

Solve:

- (a) 10 mph
- (b) 20 mph
- (c) 25 mph
- (d) 30 mph
- (e) 40 mph



5 Equations of Lines

General Equation

Slope Intercept Form of a Line

The slope-intercept form of a line is given by the equation

$$y = mx + b$$

where m is the slope of the line and b is the y -intercept of the line.

Example 1: Sunshine taxi charges a base fare of \$2.60 and \$0.40 for every quarter mile. If Elle's ride is 5 miles, how much is her ride?

Example 2: A parking lot charges \$10 for the first 4 hours and \$2 up to every additional hour. If George leaves his car for 8 and a half hours, how much is he charged?

Example 3: Moe's dad will give him \$1 for every x points over 50 on his math test, where x is a whole number of points. Moe received 86 points on his math test and earned \$12. How many points does Moe need to earn \$1 more?



5. Equations of Lines

MEDIUM

1. Travis is a car salesman and earns \$10 an hour plus a flat commission fee for each car he sells. If Travis works 30 hours and has earned \$1,000 in a week, how much does Travis earn in commission per car if he sells 4 cars?

Equation/Strategy: _____

Solve:

- (a) 160
 - (b) 175
 - (c) 320
 - (d) 360
 - (e) 640
-

2. Cherry is setting up a can drive at her school. For every 50 cans after 100 she collects, the donation center will give her one ticket to an amusement park. If Cherry wants a total of 10 tickets, what is the least number of cans she will need to collect?

Equation/Strategy: _____

Solve:

- (a) 500
- (b) 600
- (c) 1050
- (d) 1500
- (e) 5100

ADVANCED

3. The value of a car depreciates every year at a constant rate of $p\%$ of the total value. If the initial value of the car is d dollars, what is the current value of the car after m months?

Equation/Strategy: _____

Solve:

- (a) $d - pm$
 - (b) $d - \frac{pm}{12}$
 - (c) $d - \frac{pm}{100}$
 - (d) $d - \frac{pm}{1200}$
 - (e) $d \left(1 - \frac{pm}{1200}\right)$
-

4. The value of an interior angle of a regular n -gon increases as a linear function of n . If an interior angle of a 4-gon is 90° and a 6-gon is 120° , what is the sum of all interior angles of an n -gon whose interior angles are each 144° ?

Equation/Strategy: _____

Solve:

- (a) 10
- (b) 12
- (c) 144
- (d) 576
- (e) 1440



Algebra and Functions: Part II

Graphs of Parent Functions

Often times knowing what the general graphs of functions will give you insight into a problem, like solving for the intercepts of a linear function, or the minimum of a quadratic function. The graphs of the most common functions are listed below:

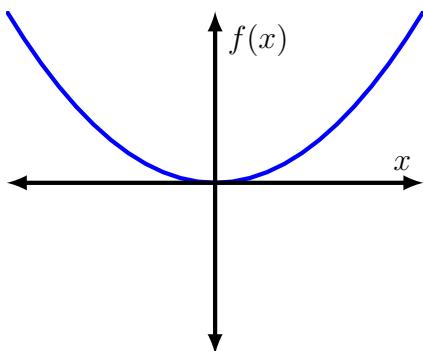


Figure 5.1: $f(x) = x^2$

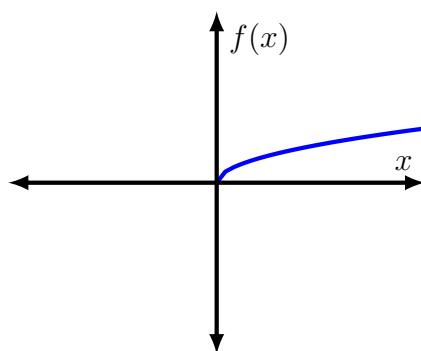


Figure 5.2: $f(x) = \sqrt{x}$

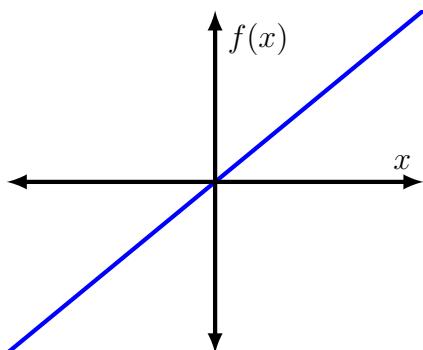


Figure 5.3: $f(x) = x$

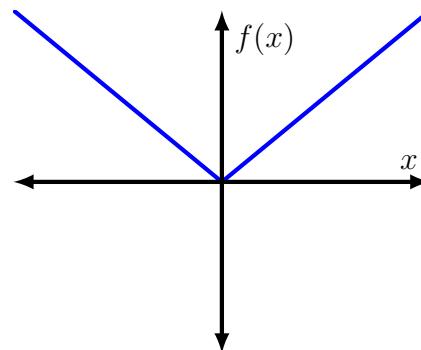


Figure 5.4: $f(x) = |x|$

1 Absolute Value

General Equation

Properties of Absolute Values

For any value a and b ,

$$|a - b| = |b - a|$$

$$|a \cdot b| = |a| \cdot |b|$$

Example 1: Dallas walks to her friends house 6 blocks north of her house. She then walks 3 blocks south to visit Francis. What is the total distance traveled by Dallas?

Example 2: A train travels east x miles, then travels west y miles. What expression gives the net distance traveled by the train?

Example 3: A ball is thrown upward from the ground and travels a distance of n meters, then bounces to a height half of the previous. If the ball bounces 5 times, what is the total distance traveled by the ball in terms of n ?



MEDIUM

1. A toy train travels on a circular path with a diameter of 10 feet. If Ellen runs the train forward 2.5 revolutions, then in reverse for 1.5 revolutions, what is the total distance traveled by the train?

Equation/Strategy: _____

Solve:

- (a) 5π meters
 - (b) 10π meters
 - (c) 40π meters
 - (d) 20π meters
 - (e) 100π meters
-

2. If two objects are falling at the same speed, s meters per second, what is the total distance over t seconds traveled by both objects if the distance between them is d units?

Equation/Strategy: _____

Solve:

- (a) $|st|$
- (b) $|st - d|$
- (c) $|2sd|$
- (d) $|2st|$
- (e) $|2st - d|$

ADVANCED

3. Lucky and Sunshine are two horses that are running in opposite directions of each other. If Lucky's velocity is p mph and is twice the velocity of Sunshine, what is the distance between the horses after t minutes?

Equation/Strategy: _____

Solve:

- (a) $\left| \frac{pt}{60} \right| + \left| \frac{pt}{120} \right|$
 - (b) $\left| \frac{pt}{60} + \frac{pt}{120} \right|$
 - (c) $\left| \frac{pt}{30} \right| + \left| \frac{pt}{60} \right|$
 - (d) $\left| \frac{pt}{30} + \frac{pt}{60} \right|$
 - (e) $\left| \frac{pt}{30} \right| + \left| \frac{pt}{120} \right|$
-

4. A ping pong ball travels a constant velocity of h inches per s seconds with every successive hit. What is the ping pong speed if it travels g feet in m minutes?

Equation/Strategy: _____

Solve:

- | | |
|-------------------------------------|-------------------------------------|
| (A) $\left \frac{5gh}{ms} \right $ | (C) $\left \frac{5hm}{gs} \right $ |
| (B) $\left \frac{gh}{5ms} \right $ | (D) $\left \frac{hm}{5gs} \right $ |
| (E) $\left \frac{gs}{5hm} \right $ | |



2 Direct and Inverse Variation

General Equation

Variation Equations

For some constant value k ,

Direct Variation

$$y = kx$$

Joint Variation

$$xy = k$$

Example 1: If there are approximately 30 centimeters in one foot, how many centimeters are there in 18 inches? (1 foot = 12 inches)

Example 2: When a delivery truck carries heavier packages, the speed of the truck decreases. If the truck is able to go 60 mph when it carries 400 lbs, how much time will it take the truck to carry 600 lbs and travel 100 miles?

Example 3: The speed of a vehicle increases as the amount of fuel used increases, and the amount of time spent traveling over a fixed distance decreases. If a vehicle goes 30 miles an hour for 60 minutes using one gallon of gasoline, how much gasoline will be required to speed the vehicle by 30 miles per hour for 45 minutes?



MEDIUM

1. The area of a square is proportional to the length of the diagonal. If d is the area, which of the following describes the area in terms of d ?

Equation/Strategy: _____

Solve:

- (a) d^2
- (b) $(d\sqrt{2})^2$
- (c) $(d/\sqrt{2})^2$
- (d) $d^2\sqrt{2}$
- (e) $\sqrt{2}d^2$

2. The measure of acidity, pH, of a compound is proportional inversely proportional to the compound's hydroxide concentration, $[\text{OH}^-]$. If the pH is 4 when $[\text{OH}^-]$ is 10^{-10} , what is the pH decreased by when the $[\text{OH}^-]$ is decreased by a factor of 10?

Equation/Strategy: _____

Solve:

- (a) 1
- (b) 3
- (c) 4
- (d) 30
- (e) 40

ADVANCED

3. The odds of guessing a number correctly are proportional to the number of terms to guess from. If the odds of choosing p numbers out of q terms is 0.4, what are the least odds of choosing p out of $q + 1$?

Equation/Strategy: _____

Solve:

- (a) 0.3
- (b) 0.33
- (c) 0.36
- (d) 0.375
- (e) 0.38

4. The volume, V , of a right cylinder is directly proportional to its radius and height. If the radius is doubled and the height is halved, what is the new volume in terms of the old volume, V ? ($V = \pi r^2 h$)

Equation/Strategy: _____

Solve:

- (a) $V/4$
- (b) $V/2$
- (c) V
- (d) $2V$
- (e) $4V$



3 Quadratic Equations

General Equation

Vertex Equation

If $f(x)$ is a quadratic functions with roots r and s , then the coordinate of the vertex (maximum or minimum) is

$$\left(\frac{s-r}{2}, f\left(\frac{s-r}{2}\right) \right)$$

Example 1: Reese jumps, starting from the ground, and reaches a maximum height of 6 feet at 3 seconds. How long does the trip take from when she first jumped until she returned back to the ground?

Example 2: A cannonball is fired from ground-level and hits the ground after t seconds. If the maximum height is h ft, write the coordinate that expresses the maximum of the cannonball's trajectory.

Example 3: The sum of two integers x and y is m and the product of the two integers is n . What is n in terms of x ?



MEDIUM

1. Stacey is making a rectangular garden for her rose bushes. If the perimeter needs to be 100 cm, what is the maximum area she can enclose?

Equation/Strategy: _____

Solve:

- (a) 25 cm²
 - (b) 50 cm²
 - (c) 100 cm²
 - (d) 500 cm²
 - (e) 625 cm²
-

2. For two integers p and q , the sum of their squares is equal to the square of their sum. What is the value of pq ?

Equation/Strategy: _____

Solve:

- (a) 0
- (b) 1
- (c) 2
- (d) 3
- (e) 4

ADVANCED

3. A sector of a circle is inscribed in a square. If the radius of the circle is equal to the side length of the square, s , what is the area of the inscribed sector in terms of s ?

Equation/Strategy: _____

Solve:

- (a) $\pi s^2/4$
 - (b) $\pi s^2/2$
 - (c) $s^2/4$
 - (d) $s^2/2 - \pi$
 - (e) $s^2 - \pi/4$
-

4. Andres has 1.2 kilometers of fencing he wishes to use to create two adjacent pens for his sheep and his goats. If he uses the fencing for the perimeter and a divider in the middle of the entire pen, what is the length, in meters of the shortest side? (1 kilometer = 1000 meters)

Equation/Strategy: _____

Solve:

- (a) 150 m
- (b) 300 m
- (c) 400 m
- (d) 600 m
- (e) 750 m



4 Rational and Radical Equations

General Equation

Rational Equation Identities

If $\frac{a}{b} = \frac{c}{d}$, then

$$ad = bc$$

$$\frac{b}{a} = \frac{d}{c}$$

$$\frac{a}{c} = \frac{b}{d}$$

$$\frac{c}{a} = \frac{d}{b}$$

Example 1: If the sequence $x, \underline{\hspace{2cm}}, y$ has a common ratio between each term, what is the value of the missing term?

Example 2: A three digit number is evenly divided by a two digit number such that the quotient is a perfect square. What is the smallest such three digit number and two digit number pair?

Example 3: For an integer n , the square root and cube root are both integers. If the square root and cube root of n are distinct, what is the smallest sum of both roots of such a number?



MEDIUM

1. The probability of choosing a red marble is 1 out of p marbles and the probability of choosing a green marble is 1 out of q marbles. Which expression represents the probability of choosing a red or a green marble?

Equation/Strategy: _____

Solve:

- (a) $(p + q)/pq$
- (b) $1/pq$
- (c) $2/pq$
- (d) $p + q$
- (e) $(1 - p)(1 - q)$

2. Benjamin is missing cards in his deck of cards. If in his deck of 50 cards there are x kings and y queens. What are the odds of choosing a queen and a king?

Equation/Strategy: _____

Solve:

- (a) $xy/50$
- (b) $(x + y)/50$
- (c) $2500/xy$
- (d) $(x + y)/2500$
- (e) $xy/2500$

ADVANCED

3. The ratio of the sides of a rectangle is $a : b$. If one is added to both sides, the new ratio of sides is $b : a$. Which of the following must be true?

- I. The rectangle is a square
- II. The area is a^2
- III. The side length is 1

Equation/Strategy: _____

Solve:

- (a) I is true
- (b) II is true
- (c) III is true
- (d) I and II are true
- (e) I, II, and III are true

4. A square is inscribed in a circle. If the radius of the circle double, by what factor does the side length of the square grow?

Equation/Strategy: _____

Solve:

- (a) 2
- (b) $\sqrt{2}$
- (c) 4
- (d) $2\sqrt{2}$
- (e) $4\sqrt{2}$



5 Concepts of Algebraic Functions

General Equation

Coordinates

Definition: If $f(a) = b$, then (a, b) is a coordinate of the graph of f .

Example 1: If Timmy sells less lemonade in week x than in week y and Timmy's sales has increased every week, what relationship describes y to x ?

Example 2: Luckystar is a horse that races in the Belmont racetrack. If Luckystar runs at x mph at time p and again at time q , what is his increase in average speed over the interval from p to q ?

Example 3: If Arnold has 3×3 , 4×4 , and 5×5 cubes, what is the least number of cubes Arnold will need to make a building that is 27 units high?

Example 4: Lindsey and Ricky have separate college tuition funds created on a Monday. Lindsey's account starts at an initial amount of \$0.50 and the total doubles every day, whereas Ricky's college tuition starts at \$1 initially and the total doubles every day. On what day will Lindsey begin having greater amounts in her account than Ricky will have in his account?



MEDIUM

1. If the amount of bacteria in a colony doubles every hour, which of the following cannot be a relative factor of the population of bacteria?

Equation/Strategy: _____

Solve:

- (a) $1/2$
 - (b) 0
 - (c) 1
 - (d) 2
 - (e) 8
-

2. f has the property that $f(\square) = \clubsuit$ and $f(\clubsuit) = \square$ for all \clubsuit and \square . Which of the following represents the equation for f in terms of x ?

Equation/Strategy: _____

Solve:

- (a) $f(x) = x$
- (b) $f(x) = x^2$
- (c) $f(x) = 0$
- (d) $f(x) = 1$
- (e) $f(x) = \sqrt{x}$

ADVANCED

3. The odds of choosing a prime number out of x terms is m and the odds of choosing an even number out of the same x terms is n . What are the odds of choosing an even prime out of x^2 terms?

Equation/Strategy: _____

Solve:

- (a) $1/mn$
 - (b) $1/x$
 - (c) $1/x^2$
 - (d) $1/(m + n)$
 - (e) Cannot be determined
-

4. If Kat is on a swing that starts at a height of h off the ground and reaches the ground after $t/3$ seconds, at what position will she be at $15t$ relative to her beginning position?

Equation/Strategy: _____

Solve:

- (a) h
- (b) $-h$
- (c) 0
- (d) $2h$
- (e) $-2h$



6 Newly Defined Symbols Based on Commonly Used Operations

General Equation

Function

Definition: $y = f(x)$ indicates that the value of y is a function of it's input x . For each value of x there is one and only one value of y .

Example 1: If $f \otimes g$ is defined as $f \cdot g - (f + g)$, what must be true of f and g so that $f \otimes g = 0$?

Example 2: If $f \% g$ is defined as the remainder of f when divided by g , what is $(x - 4x + 4) \% (x - 2)$?

Example 3: S is a set with elements s_1, s_2, \dots, s_n . Let $S \bullet S$ be defined as $s_1 \cdot s_1 + s_2 \cdot s_2 + \dots + s_n \cdot s_n$. If $S \bullet S = 0$ what must be true of the elements of S ?



MEDIUM

1. If $x^2 - 64 = 36$ and $x - 8 = 9$, what is the value of $x + 8$?

Equation/Strategy: _____

Solve:

- (a) 4
 - (b) 18
 - (c) 25
 - (d) 64
 - (e) 100
-

2. $i \# a$ is defined as i^a . If $i \# 2 = -1$ and $i \# 3 = -i$, what is the value of $i \# 115$?

Equation/Strategy: _____

Solve:

- (a) 1
- (b) -1
- (c) i
- (d) $-i$
- (e) 0

ADVANCED

3. $\lfloor x \rfloor$ is defined as the greatest integer less than or equal to x whereas $\lceil x \rceil$ is defined as the least integer greater than or equal to x . What is the value of $\lfloor \lceil x \rceil \rfloor$?

Equation/Strategy: _____

Solve:

- (a) 1
 - (b) 0
 - (c) x
 - (d) x^2
 - (e) Cannot be determined
-

4. The ternary operation $a @ b @ c$ is defined as $a = b$ when $a \geq 0$, and $a = -a$ when $a < 0$. What is the value of $a^2 @ -|a^2| @ \sqrt{(-a^2)^2}$?

Equation/Strategy: _____

Solve:

- (a) $-a^2$
- (b) a^2
- (c) $|-a^2|$
- (d) $\sqrt{a^4}$
- (e) $\sqrt{-a^4}$

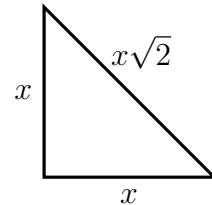
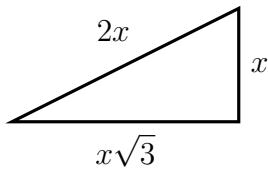
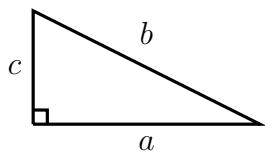
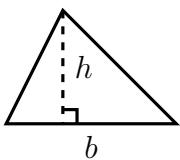


6

Geometry and Measurement: Part I

The SAT math section includes topics in Geometry as well as Algebra. The equations that are given on the SAT all pertain to Geometry and are listed below. Know the equations that are given so as not to work on memorizing them.

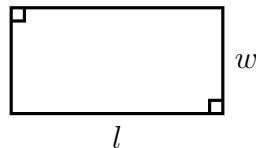
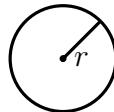
SAT Math Given Equations



$$A = \frac{1}{2}bh$$

$$c^2 = a^2 + b^2$$

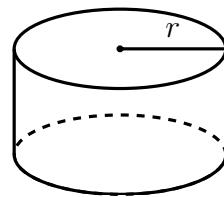
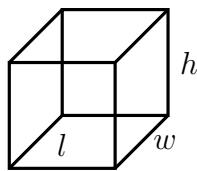
Special Right Triangles



$$A = \pi r^2$$

$$A = lw$$

$$C = 2\pi r$$



$$V = lwh$$

$$V = \pi r^2 h$$

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1 Area and Perimeter of a Polygon

General Equation

Area and Perimeter

Area

The measure of the surface of a two-dimensional shape

Perimeter

The measure of the distance around a two-dimensional shape

Example 1: The lengths of an n -sided figure are each doubled. If the perimeter of the original n -sided figure was P , what is the value of the new perimeter?

Example 2: A circle inscribed in a box has a radius equal to half of the diameter of the box. What area of the circle is not in the square if the radius is 1?

Example 3: A pizza box has a perimeter that is 1.5 times the circumference of the pizza. If the pizza has a diameter of 16 inches, what is the difference between the perimeter of the box and the circumference of the pizza?



MEDIUM

1. A square is inscribed in a circle. If the area of the square is 9 sq. in., what is the difference between the circumference of the circle and the perimeter of the square?

Equation/Strategy: _____

Solve:

- (a) $3\sqrt{2}\pi - 12$
(b) $12 - 3\sqrt{2}\pi$
(c) $6\sqrt{2}\pi - 12$
(d) $12 - 6\sqrt{2}\pi$
(e) 3
-

2. A right triangle has an area of b sq. units. If a rectangle has a height equivalent to the height of the right triangle, and a base equivalent to twice the base of the right triangle, what is the area of the rectangle in terms of a ?

Equation/Strategy: _____

Solve:

- (a) a
(b) $2a$
(c) $4a$
(d) a^2
(e) $2a^2$

ADVANCED

3. A rectangle whose width is twice its height is inscribed in a semicircle whose radius is equal to width of the rectangle. If h is the height of the rectangle, which expression represents the area of the semicircle not in the area of the rectangle?

Equation/Strategy: _____

Solve:

- (a) $2w^2(\pi - 1)$
(b) $2w^2(9w^2\pi - 1)$
(c) $2w^2(2\pi - 1)$
(d) $2w^2(2\pi - 1)$
(e) $w^2(\pi - 2)$
-

4. Triangle A is inscribed in equilateral triangle B so that the vertices of A are the midpoints of the sides of B . If the area of B is 12 sq. units, what is the area of the B with A removed?

Equation/Strategy: _____

Solve:

- (a) 6 sq. units
(b) 7 sq. units
(c) 8 sq. units
(d) 9 sq. units
(e) 12 sq. units



2 Area and Circumference of a Circle

General Equation

Area and Circumference of a Circle

For a circle of radius r ,

Area of a Circle

$$A = \pi r^2$$

Circumference of a Circle

$$C = 2\pi r$$

Example 1: Sally baked a chocolate cake that has a diameter of 10 inches. How much frosting is required to cover the top of the cake?

Example 2: A car's wheel travels at 10 revolutions before coming to a stop. If the diameter of the tire is 2 ft, what is the total distance the wheel has traveled?

Example 3: If a minute hand on a clock is 7 cm long and moves from 0 minutes to 25 minutes, what is the length of the distance traveled by the minute hand?



MEDIUM

1. The circumference of a circle is 6 cm. What is the area of one-sixth of the circle?

Equation/Strategy: _____

Solve:

- (a) $\frac{3}{2\pi}$
 - (b) $\frac{3\pi}{2}$
 - (c) 9π
 - (d) $\frac{3}{2}$
 - (e) $\frac{2}{3}$
-

2. The area of the shadow of a basketball is directly proportional to the distance of the ball to the ground. If the area of the shadow of a basketball is 27 sq. in when the ball is 4 feet from the ground, what is the length of the radius when the ball is 2 feet from the ground?

Equation/Strategy: _____

Solve:

- (a) $\frac{3\sqrt{6\pi}}{2\pi}$ sq. in.
- (b) $\sqrt{\frac{27\pi}{2}}$ sq. in.
- (c) $\sqrt{\frac{27}{2\pi}}$ sq. in.
- (d) 13.5 sq. in.
- (e) 54 sq. in.

ADVANCED

3. A outdoor circular pool is drained and covered with a tarp at the end of the season. If the tarp is one foot wider on all sides than the pool, and the area of the pool is 16 square feet, how much longer is the circumference of the tarp than the circumference of the pool?

Equation/Strategy: _____

Solve:

- (a) 2π
 - (b) $8\sqrt{\pi} + 2\pi$
 - (c) $8\sqrt{\pi} - 4\sqrt{\pi}$
 - (d) $8\sqrt{\pi} - 2\pi$
 - (e) $\frac{4\sqrt{\pi}}{\pi} + 1$
-

4. A circular track consists of two concentric circles. Runner *A* runs a lap on the inner most track in 15 minutes, while runner *B* runs on the outer most track in the same time. How much faster was the rate of runner *B* if the outer track is 2 meters further away from the center of the track?

Equation/Strategy: _____

Solve:

- (a) $\frac{2\pi}{15}$
- (b) $\frac{4\pi}{15}$
- (c) $\frac{2}{15}$
- (d) $\frac{4}{15}$
- (e) $\frac{\pi}{15}$



3 Volume of a Box, Cube, and Cylinder

General Equation

Volume Equations

Volume of a Box

$$V = l \times w \times h$$

Volume of a Cube

$$V = s^3$$

Volume of a Cylinder

$$V = \pi r^2 h$$

Example 1: Kallie is filling her bookshelf with books that are $8 \times 5 \times 2$ in³. If Kallie has 16 such books, how much volume do the books occupy?

Example 2: A large cube is made by stacking smaller 4×4 cubes. What is the total volume of the large cube?

Example 3: Pete stacks pizza pies on each other in a freezer for later heating. The pizzas are 2 inches thick and have a diameter of 16 inches. What volume do 10 pizzas occupy?



MEDIUM

1. A rectangular box has a volume of 36 in^3 . If cubes of side length 2 are placed into the rectangular box, what is the least amount of volume of the box not filled by the cubes?

Equation/Strategy: _____

Solve:

- (a) 0 in^3
(b) 2 in^3
(c) 4 in^3
(d) 6 in^3
(e) 8 in^3
-

2. A cylinder is placed in a rectangular box so that the diameter of the cylinder is the width and height of the rectangle. What is the ratio of volume of the cylinder to the volume of the box?

Equation/Strategy: _____

Solve:

- (a) $4 - \pi$
(b) $\frac{4}{\pi}$
(c) $\frac{\pi}{4}$
(d) $\frac{8}{\pi}$
(e) $\frac{\pi}{8}$

ADVANCED

3. A cube of volume V of integer side length s is split into 6 smaller rectangular boxes of equal volume. What is the value of V if it is the smallest such cube?

Equation/Strategy: _____

Solve:

- (a) 6
(b) 36
(c) 64
(d) 125
(e) 216
-

4. Cubic blocks are stored in a cylindrical container so that the diagonal length of the cube is the diameter length of the cylinder. If the height of the cylinder is 5 times the radius, what is the most number of cubes that fit into the cylinder?

Equation/Strategy: _____

Solve:

- (a) 1
(b) 2
(c) 3
(d) 4
(e) 5



4 Pythagorean Theorem and Special Properties of Isosceles, Equilateral, and Right Triangles

General Equation

The Pythagorean Theorem

In a right triangle, if a and b are the side lengths of the triangle and c is the length of the hypotenuse, then

$$a^2 + b^2 = c^2$$

Example 1: The perimeter of an equilateral triangle is 16 cm. What is the triangle's area?

Example 2: Gretchen and Samuel leave school. Gretchen walks 45° due south west and Samuel walks 45° due south east. If they each live a quarter mile away from school, what is the distance between their houses?

Example 3: A 13 ft ladder is propped up against a wall. If the base of the ladder to the base of the wall is equidistant from the top of the ladder to the base of the wall, what is the difference between the length of the ladder and the base of the ladder to the base of the wall?



MEDIUM

1. The area of an equilateral triangle is 16 cm^2 . What is the triangle's perimeter to the nearest hundredth?

Equation/Strategy: _____

Solve:

- (a) 3.04
 - (b) 6.07
 - (c) 6.08
 - (d) 18.23
 - (e) 18.24
-

2. The ratio of the sides of a right triangle are in a proportion of $3 : 4 : 5$ where x is the proportion of the longest side. If the hypotenuse is 27 units long, what is the area of the triangle to the nearest whole number?

Equation/Strategy: _____

Solve:

- (a) 72
- (b) 65
- (c) 175
- (d) 162
- (e) 243

ADVANCED

3. The hypotenuse of a right triangle is twice as long as the shortest side. If the length of the longer leg is 10 cm, what is the perimeter of the triangle?

Equation/Strategy: _____

Solve:

- (a) $10 + 10\sqrt{3}$
 - (b) $20 + \sqrt{3}$
 - (c) $20 + 10\sqrt{3}$
 - (d) $30 + 10\sqrt{3}$
 - (e) 30
-

4. The side lengths of a rectangle are in a proportion of $a : a + 4$. If the perimeter is 76 sq. units, what is the length of the diagonal to the nearest whole number?

Equation/Strategy:

Solve:

- (a) 12 units
- (b) 16 units
- (c) 24 units
- (d) 27 units
- (e) 40 units



Geometry and Measurement: Part II

The connection between solving a problem algebraically and solving it graphically is missed at times, but many problems in the SAT math section can be solved using either. Remember that to solve a system of equations algebraically is the same thing as looking for the point of intersection on their graphs. If, for example, you are working with two lines, and their graphs do not intersect, then the lines are parallel as in Figure 7.1. If the intersection of the two lines form a 90° angle, then the lines are perpendicular as in Figure 7.2.

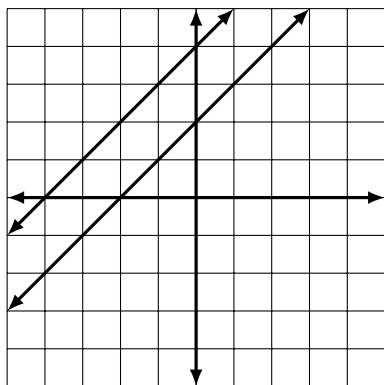


Figure 7.1: Parallel lines

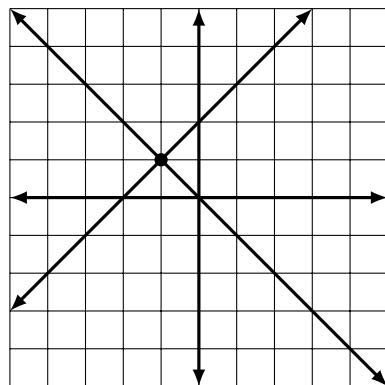


Figure 7.2: Perpendicular lines

1 Properties of Parallel and Perpendicular lines

General Equation

Parallel and Perpendicular Lines

For lines L_1 and L_2 with slopes m_1 and m_2 respectively

Parallel Lines

$$m_1 = m_2$$

Perpendicular Lines

$$m_1 \cdot m_2 = -1$$

Example 1: Two planes are traveling parallel to one another. If the first plane travels in a direction 30 miles north and 40 miles east of where it began, and the second plane travels 60 miles north of where it began, how far east must it travel in order to remain parallel to the first plane?

Example 2: Two cars starting at the same location are traveling perpendicular to one another. What is the distance between the two cars if the first car has traveled 30 miles in one hour and the second car has traveled 40 miles in one hour?

Example 3: A frog's tongue shoots straight up into the air to catch a fly that is flying horizontally. If the distance from the fly's speed is 6 meters per second and the speed between the frog and the fly is 20 meters per 2 seconds, how fast must the frog's tongue move in order to catch the fly?



MEDIUM

1. Roads A and B are parallel roads. If Road C runs perpendicular to road A, which of the following must be true?
- I. Road C is perpendicular to Road B
 - II. Road A and C form a 90° angle
 - III. The distance between Road A and Road B is uniform

Equation/Strategy: _____

Solve:

- (a) I only
- (b) II only
- (c) III only
- (d) I and II are true
- (e) I, II, and III are true

2. Two dogs are running perpendicular paths, starting at the same location. If the first dog runs m meters in 5 minutes, and the second dog runs m meters in 10 minutes, which of the following represents the distance between the dogs after 10 minutes?

Equation/Strategy: _____

Solve:

- (a) $m\sqrt{2}$
- (b) $m\sqrt{3}$
- (c) $\sqrt{2m^2 + m^2}$
- (d) $\sqrt{\frac{m^2}{2} + m^2}$
- (e) $\sqrt{4m^2 + m^2}$

ADVANCED

3. A set of parallel roads runs perpendicular to a second set of parallel roads. If the distance between each intersection along the road is at most m km, which of the following cannot be the distance between diagonal intersections?

Equation/Strategy: _____

Solve:

- (a) m
- (b) $2m$
- (c) $\frac{m}{2}$
- (d) $\frac{m\sqrt{2}}{2}$
- (e) $m\sqrt{2}$

4. A pair of parallel chords are inscribed in a circle, equidistant from the center. If the distance between the chords is equal to the radius, r , what is the length each chord in terms of r ?

Equation/Strategy: _____

Solve:

- (a) $\frac{r\sqrt{3}}{2}$
- (b) $r\sqrt{3}$
- (c) $\frac{3r^2}{4}$
- (d) r
- (e) $2r$



2 Slope

General Equation

Slope

Definition: Slope indicates the steepness of a line. The slope is denoted as a ratio of the rise over the run of a line, or the change in the vertical distance over the change in the horizontal distance between any two points on a line. For two points (x_1, y_1) and (x_2, y_2) , the slope, m , is

$$m = \frac{\text{change in } y}{\text{change in } x} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Example 1: Points $(2, 3)$ and $(5, k)$ lie on the line $3x - my = 6$. What is the value of k in terms of m ?

Example 2: What is the slope of the line formed when connecting the minute hand and the hour hand on a clock at 9 am if the distance between them is twice the length of the hour hand?

Example 3: A toy rocket is launched from the ground at a 60° angle into the air. Assuming the rocket travels a straight path, what is the slope of its path from the ground to its maximum?



MEDIUM

1. A ski lift travels 1500 feet at a 60° angle of elevation to the top of a mountain. What is the slope of the path that the ski lift travels?

Equation/Strategy: _____

Solve:

- (a) $\sqrt{3}/3$
(b) $1/2$
(c) $\sqrt{3}/2$
(d) $2\sqrt{3}/3$
(e) $\sqrt{3}$
-

2. If the line $3x + ky = 8$ passes through point $(-4, 5)$, what is the value of k ?

Equation/Strategy: _____

Solve:

- (a) $-4/5$
(b) $7/4$
(c) 4
(d) 5
(e) $23/4$

ADVANCED

3. An equilateral triangle is drawn in the first quadrant with coordinates $(0, 0)$ and $(6, 0)$. What is the slope of the line formed from the point at the origin to the third point?

Equation/Strategy: _____

Solve:

- (a) $1/2$
(b) $\sqrt{3}$
(c) 2
(d) 3
(e) 6
-

4. L_1 and L_2 are two lines with slopes m_1 and m_2 respectively. If $m_1 \cdot m_2 = 1$, which of the following cannot be true?

Equation/Strategy: _____

Solve:

- (a) L_1 and L_2 are parallel lines
(b) L_1 and L_2 are intersecting lines
(c) L_1 and L_2 are perpendicular lines
(d) L_1 and L_2 are coinciding lines
(e) m_1 and m_2 are reciprocals



3 Similarity

General Equation

Similarity

Definition: Two polygons are similar if all corresponding sides are in proportion.

Example 1: Square ABCD and square EFGH have side lengths in a ratio of 1 : 2. What percentage increase is the area of EFGH to ABCD?

Example 2: Line segment DE is drawn in triangle ABC so that D is the midpoint of AB and E is the midpoint of AC. What is the ratio of the areas of ADE to EDBC?

Example 3: Two concentric circles are drawn such that the radius of the outer circle is twice the diameter of the inner circle. What percentage is the circumference of the outer circle to the circumference of the inner?



MEDIUM

1. The circumference of a children's basketball is 27.5 inches whereas the circumference of an NBA basketball is 29.5 inches. What is the ratio of their volumes?

Equation/Strategy: _____

Solve:

- (a) 55 : 59
- (b) 351 : 433
- (c) 351 : 434
- (d) 437 : 469
- (e) 438 : 470

2. An equilateral triangle is inscribed in another so that only the vertices of the inner triangle touch the edges of the outer. What is the greatest possible ratio of the area of the smaller triangle to the bigger one?

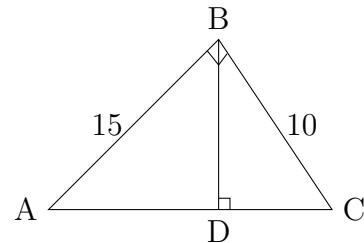
Equation/Strategy: _____

Solve:

- (a) 1 : 9
- (b) 1 : 4
- (c) 1 : 3
- (d) 1 : 2
- (e) 2 : 3

ADVANCED

3. Right triangle BDC is similar to triangle ABC as shown below.



If $AB = 15$ and $BC = 10$, what is the length of BD ?

Equation/Strategy: _____

Solve:

- (a) 7.5
- (b) 8
- (c) 12.5
- (d) $\frac{30\sqrt{13}}{13}$
- (e) $150 - \sqrt{325}$

4. What is the ratio of the diagonal of the a cube with a volume of 8 cm^3 to the diagonal of a cube with a volume of 64 cm^3 ?

Equation/Strategy:

Solve:

- (a) 1 : 8
- (b) 1 : 4
- (c) 1 : 2
- (d) $\sqrt{2} : 4$
- (e) $\sqrt{2} : \sqrt{3}$



4 Transformations

General Equation

Transformations

Let $f(x)$ be a function. Then the function

$$g(x) = a \cdot f(b(x - h)) + k$$

is a transformation of $f(x)$ where

- a is the vertical stretch/compression
 - If $|a| < 1$, then g is a vertical stretch of f
 - If $|a| > 1$, then g is a vertical compression of f
 - If a is negative, then g is a reflection of f about the x -axis
- b is the horizontal stretch
 - If $|b| < 1$, then g is a horizontal stretch of f
 - If $|b| > 1$, then g is a horizontal compression of f
 - If b is negative, then g is a reflection of f about the y -axis
- h is the horizontal shift
 - If $h > 0$, then g is a horizontal shift of f by h units to the right
 - If $h < 0$, then g is a horizontal shift of f by h units to the left
- k is the vertical shift
 - If $k > 0$, then g is a vertical shift of f by k units up
 - If $k < 0$, then g is a vertical shift of f by k units down

Example 1: Describe the transformation of f by the function $2 \cdot g(x) + 3 = f(x)$.

Example 2: If $f(3) = -2$, and $g(x) = f(x - 2) + 3$, what coordinate must be on the graph of g ?

Example 3: Let $g(x) = |f(x - 1) - 2| - 3$. What is the vertical shift of $f(x)$ by $g(x)$?



MEDIUM

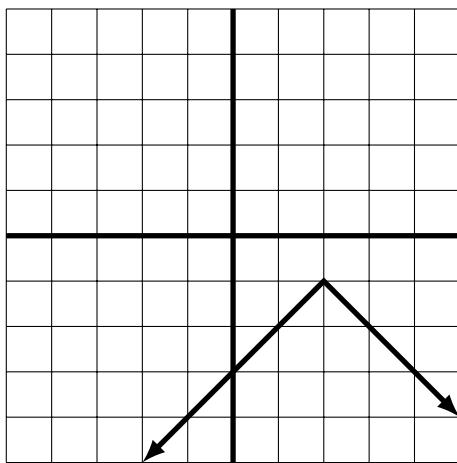
1. If $g(x) = |f(x)|$ and $(-x, y)$ is a coordinate of $f(x)$, which of the following is a coordinate of $g(x)$?

Equation/Strategy: _____

Solve:

- (a) (y, x)
 - (b) (x, y)
 - (c) $(x, -y)$
 - (d) $(-x, y)$
 - (e) $(-x, -y)$
-

2. The graph of $g(x)$ is shown below.



If $g(x)$ is a transformation of $|x|$, which of the following is the equation of $g(x)$?

Equation/Strategy: _____

Solve:

- (a) $-|x - 2| - 1$
- (b) $|2 - x| - 1$
- (c) $-|x + 2| - 1$
- (d) $-|x + 1| + 2$
- (e) $-|x - 1| + 2$

ADVANCED

3. Which of the following can represent a transformation of the function $f(x)$?

Equation/Strategy: _____

Solve:

- (a) $\frac{1}{1/f(x)}$
 - (b) $f(f^{-1}(f(x)))$
 - (c) $\sqrt[3]{f(x)^3}$
 - (d) $\sqrt{f(x)^2}$
 - (e) $f(x \cdot 0!)$
-

4. The function $f(x)$ has a coordinate $(m, -n)$. $f(x)$ is shifted k units down and g units right, then reflected across the line $y = x$. Which of the following is the resulting coordinate of the transformation?

Equation/Strategy: _____

Solve:

- (a) $(-m - g, n + k)$
- (b) $(-n + k, m - g)$
- (c) $(m - g, -n + k)$
- (d) $(-n - k, m - g)$
- (e) $(m - g, -n - k)$



8

Geometry and Measurement: Part III

Distance is the smallest length between two points. It is an absolute value and is determined by the Pythagorean Theorem. For two points, P_1 and P_2 , the distance is the length d , as shown graphically in Figure 8.1 below.

A *midpoint* is simply the point between any two given points, and is given by the average of the two points. The coordinate of the midpoint, M , of two points, P_1 and P_2 , is shown in Figure 8.2.

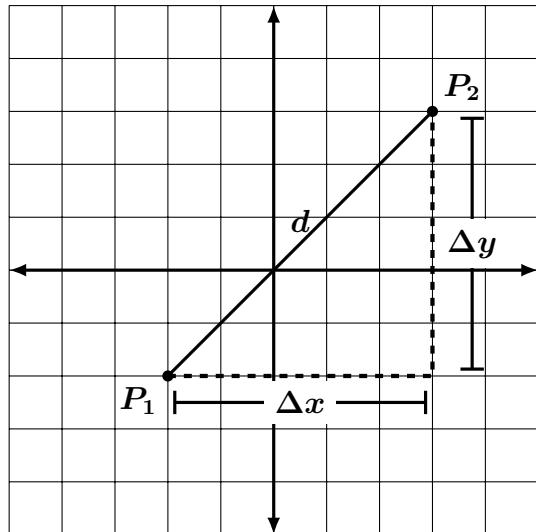


Figure 8.1: Visualization of distance

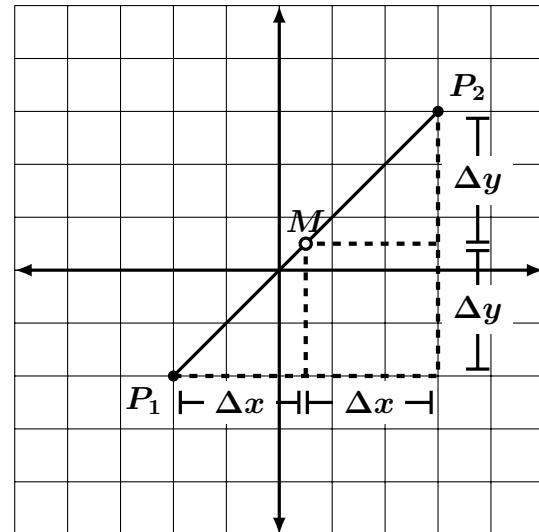


Figure 8.2: Visualization of a midpoint

1 Coordinate Geometry

General Equation

Distance and Midpoint Formulas

For two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$ on a line,

Distance Formula

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint Formula

$$P = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Example 1: Points A and B are 5 units apart. If point A is located at $(3, 4)$, what is the coordinate of B if it is located in the fourth quadrant?

Example 2: Points P and Q have coordinates $(3, k)$ and $(n, 6)$ respectively. If point R is their midpoint and has a coordinate of $(10, 4)$, what is the value of $n + k$?

Example 3: What is the area of the triangle formed by the points $(3, 1)$, $(9, 7)$, and $(3, 7)$?



MEDIUM

1. The coordinate $(4, 6)$ is the midpoint of $(14, 8)$ and which of the following?

Equation/Strategy: _____

Solve:

- (a) $(-10, -2)$
(b) $(-4, 4)$
(c) $(9, 7)$
(d) $(10, 2)$
(e) $(24, 10)$
-

2. A circle centered at the point $(8, 12)$ passes through the point $(12, 8)$. What is the length of the circle's diameter?

Equation/Strategy: _____

Solve:

- (a) $\sqrt{8}$
(b) $\sqrt{32}$
(c) $2\sqrt{32}$
(d) 16
(e) 32

ADVANCED

3. The vertices of a triangle have the coordinates $(1, 2)$, $(3, 4)$, and $(5, 6)$. What is the perimeter of the triangle?

Equation/Strategy: _____

Solve:

- (a) $\sqrt{32}$
(b) $8\sqrt{2}$
(c) $8 + 4\sqrt{2}$
(d) 8
(e) 24
-

4. The vertices of a parallelogram are given by the coordinates $(3, 3)$, $(3, m)$, $(1, 1)$, and $(1, n)$. If the area of the parallelogram is 12, what is the value of $m + n$?

Equation/Strategy:

Solve:

- (a) 6
(b) 12
(c) 14
(d) 16
(e) 18

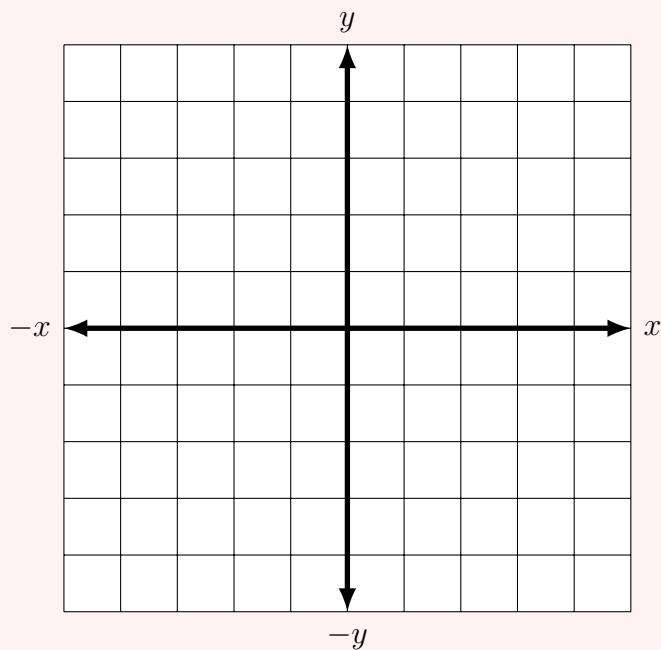


2 Geometric Visualization

General Equation

XY-plane

Definition: The xy -plane (Cartesian plane) is used to plot rectangular coordinates (x, y) .



Example 1: An northward facing arrow is rotated 45° counterclockwise, then flipped vertically and horizontally. What direction is the arrow now facing?

Example 2: Opposite sides of dice have a sum of 7. If John rolls a die three times and the sum of his rolls is 7, what is the sum of the opposite sides of the same three rolls?

Example 3: A right isosceles triangle with a radius of 2 is rotated about its right angle to form a 3-dimensional solid. What is the volume of the resulting shape?

MEDIUM

1. If a circle is cut into regions by three lines, what is the maximum number of regions formed?

Equation/Strategy: _____

Solve:

- (a) 3
 - (b) 4
 - (c) 5
 - (d) 6
 - (e) 7
-

2. A square piece of paper of side length 10 is folded along its diagonal to make a triangle. The triangle is then folded symmetrically in half down the middle, resulting in another triangle. What is the perimeter of the final triangle?

Equation/Strategy: _____

Solve:

- (a) 10
- (b) 15
- (c) $10\sqrt{2}$
- (d) $5 + 5\sqrt{2}$
- (e) $10 + 10\sqrt{2}$

ADVANCED

3. The steering wheel of a boat has 4 spokes, colored red, blue, green, and purple in that order going clockwise. If the red spoke faces east when the boat is at rest, what color faces north when the wheel has rotated 2.5 times counterclockwise?

Equation/Strategy: _____

Solve:

- (a) Red
 - (b) Blue
 - (c) Green
 - (d) Purple
 - (e) Cannot be determined
-

4. A roll of tape has a tube with a diameter of 10 cm and a uniform layer of tape that is 5mm. If the tape has a thickness of 1mm, what is the approximate length of the tape unraveled?

Equation/Strategy:

Solve:

- (a) 157 cm
- (b) 314 cm
- (c) 1.57 cm
- (d) 3.14 cm
- (e) 15708 cm



Data Analysis, Statistics, and Probability

The last set of categories in the SAT math section pertain to reading tables, graphs, and charts, and statistics and probability. While the SAT intends to test your arithmetic and logic skills, it often overlooks that it also tests your knowledge of U.S. customs such as currency. This is a challenge for many students from around the world who take the SAT where English is not primarily spoken and U.S. currency is not used. Below is a table with images of the coins that are a part of currently circulated U.S. currency.

U.S. Coins and Denominations



Penny = \$0.01 USD



Nickel = \$0.05 USD



Dime = \$0.10 USD



Quarter = \$0.25 USD

1. Data Interpretation with Tables

1 Data Interpretation with Tables

General Equation

Data and Tables

Definition: *Data* is a collection of facts and statistics for reference and analysis. The information from data is gathered and presented in a *table* which arranges categories by columns and rows.

Prices of Conventional vs Organic Produce in 2012¹

Conv/Org	City	Jan	Feb	Mar	Apr	May	June
Conv	Atlanta	12.50	12.25	11.50	11.81	11.08	12.68
Org	Atlanta	24.97	23.93	30.63	28.39	31.39	31.25
Conv	San Fran	6.60	7.28	6.87	6.71	8.03	7.84
Org	San Fran	22.00	22.00	22.00	22.00	22.00	21.96

Figure 9.1: Prices by city of 1 unit of conventional vs organic produce in 2012

Example 1: According to the table above, which city has the higher average cost of organic produce per unit from January to June?

Example 2: Approximately what percentage of the average cost of conventional produce of Atlanta is the average cost of organic produce of San Francisco?

Example 3: What ratio of months in either city was the cost of 3 units of conventional produce lower than the cost of 1 unit of organic produce?

¹ "USDA ERS - Organic Prices." USDA ERS - Organic Prices. N.p., n.d. Web. 06 Apr. 2015.

Births in Massachusetts in 2012²

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Births	5,600	5,266	5,957	5,872	6,398	6,179	6,464	6,413	6,211	6,270	5,954	5,855

Table 9.1: Births in 2012 by month

Day	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Births	648	870	1,001	836	807	817	621

Table 9.2: Births in January 2012 by day

MEDIUM

1. If there were 72,439 births in Massachusetts in 2012, what ratio of months were the number of births above the average?

Equation/Strategy: _____

Solve:

- (a) $1/6$
- (b) $1/4$
- (c) $1/3$
- (d) $1/2$
- (e) $2/3$

2. Approximately what percentage of babies were born on a weekday in January?

Equation/Strategy: _____

Solve:

- (a) 74%
- (b) 77%
- (c) 78%
- (d) 79%
- (e) 82%

²*Massachusetts Births 2011 and 2012.* Boston, MA: Office of Data Management and Outcomes Assessment, Massachusetts Department of Public Health. May 2014.

1. Data Interpretation with Tables

ADVANCED

3. Approximately what percentage of the month with the lowest number of births does the difference between that month and the month with the highest number of births represent?

Equation/Strategy: _____

Solve:

- (a) 19%
 - (b) 20%
 - (c) 21%
 - (d) 22%
 - (e) 23%
-

4. If there were 5 Sundays, Mondays, and Tuesdays in January of 2012, and only 4 of every other day, which day had the highest average number of births for the month?

Equation/Strategy:

Solve:

- (a) Monday
- (b) Tuesday
- (c) Wednesday
- (d) Thursday
- (e) Friday



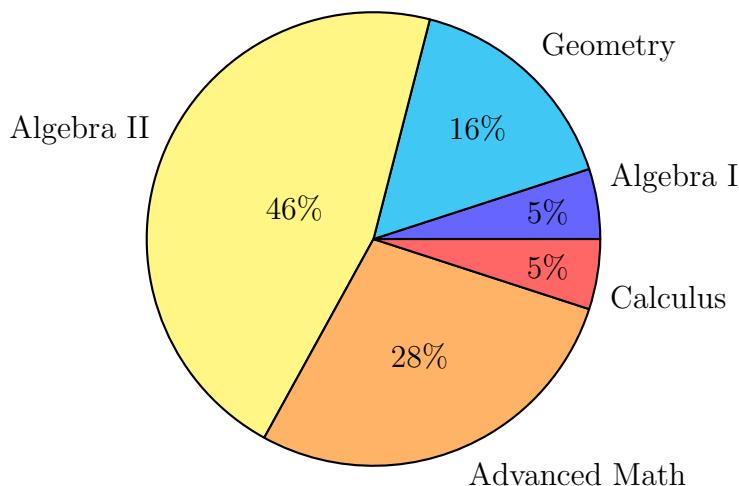
2 Data Interpretation with Graphs

General Equation

Graphs

Definition: A *graph* is a diagram that shows the relationship between two or more variables.

Highest Level of Math by High School Graduates in 2005³



The graph above indicates the highest level of math completed by high school graduates in the U.S. in 2005.

Example 1: What proportion of students completed Algebra II or Advanced Math over all other courses?

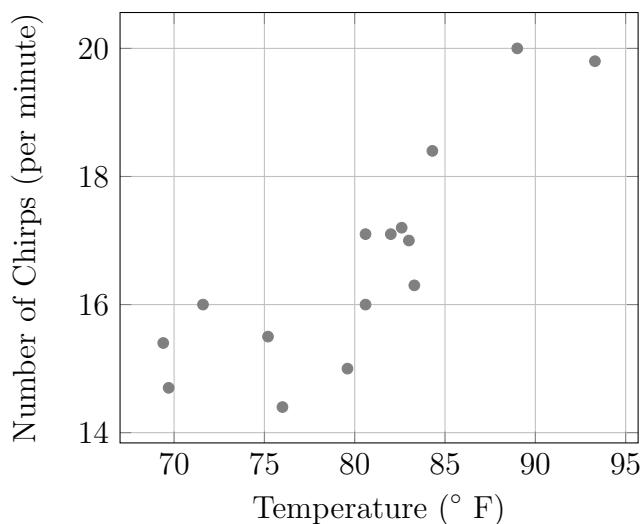
Example 2: If there are 4200 students in Advanced Algebra, how many students are in Geometry?

Example 3: If the total number of students represented by the graph is 12,000, how many more students are in geometry than in Algebra I or Calculus?

³U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, High School Transcript Study (HSTS), Mathematics Curriculum Study, 2005.

2. Data Interpretation with Graphs

Temperature vs Cricket Chirps



The graph above shows the number of chirps a cricket makes per minute versus the temperature of its habitat in degrees Fahrenheit.

MEDIUM

1. How many points recorded less than 16 chirps for temperatures less than 75° F?

Equation/Strategy: _____

Solve:

- (a) 0
- (b) 1
- (c) 2
- (d) 3
- (e) 4

2. Which of the following is likely not a point on the graph?

Equation/Strategy: _____

Solve:

- (a) (60, 14)
- (b) (70, 14)
- (c) (80, 18)
- (d) (90, 18)
- (e) (100, 20)



ADVANCED

3. What is the difference in temperature between the temperatures of the highest and lowest number of chirps per minute recorded?

Equation/Strategy: _____

Solve: _____

- (a) 5
 - (b) 5.5
 - (c) 6
 - (d) 13
 - (e) 15
-

4. Of the 15 points recorded in this dataset, what proportion of the points are represented by a rate of 5° F per chirp or greater?

Equation/Strategy: _____

Solve: _____

- (a) $1/15$
- (b) $2/15$
- (c) $1/5$
- (d) $4/15$
- (e) $1/3$



3 Descriptive Statistics: Mean, Median, and Mode

General Equation

Descriptive Statistics

Mean The sum of all terms in a list, divided by the number of terms

Median The middle value in an ordered list

Mode The value that occurs most often

Range The difference between the highest and lowest values in a set

Example 1: The average (arithmetic mean) of Sally's previous three tests is 85. If a fourth test boosts her test average up by 2 points, what grade did she receive on her the fourth test?

Example 2: The median of a set of four numbers is 10. If a large number greater than the other numbers in the set is added to the set, the median becomes 12. What is the value of the second lowest number in the set?

Example 3: A set of five numbers has a mode of 10. If the average of the set is 25 and the maximum is 50, how many values in the set are equal to the mode?



MEDIUM

1. The mean of a set is less than the median of the set. If a is a positive integer, which of the following could be the set?

Equation/Strategy: _____

Solve:

- (a) $\{a, a, a, a, a, a\}$
 - (b) $\{a, a, a, a, 2a, 2a\}$
 - (c) $\{a, a, a, 2a, 2a, 2a\}$
 - (d) $\{a, a, 2a, 2a, 2a, 2a\}$
 - (e) $\{a, 2a, 3a, 4a, 5a, 6a\}$
-

2. The range of a set is twice its median. If the median is m , what is the average (arithmetic mean) of the set in terms of m ?

Equation/Strategy:

Solve:

- (a) 0
- (b) 1
- (c) m
- (d) $2m$
- (e) Cannot be determined from the information given

ADVANCED

3. Which of the following are true about the set of consecutive integers from 1 to n ?

- I The median is $\frac{n}{2}$
- II The average is $\frac{n+1}{n}$
- III The range is equal to $n - 1$

Equation/Strategy: _____

Solve:

- (a) I only
 - (b) II only
 - (c) I and II are true
 - (d) II and III are true
 - (e) I, II, and III are true
-

4. Kelly's test average was an 85. On her last exam, she received a 95 and her test average increased by 2 points. How many tests has Kelly taken?

Equation/Strategy: _____

Solve:

- (a) 2
- (b) 3
- (c) 4
- (d) 5
- (e) 6



4 Probability

General Equation

Probability of Independent Events

For independent events A and B ,

$$P_{A \text{ and } B} = P_A \cdot P_B$$

$$P_{A \text{ or } B} = P_A + P_B - P_{A \text{ and } B}$$

Example 1: Liang is playing a card game with a standard deck of playing cards. He wants the first card he picks up to be either a red card or a face card (Jack, Queen, or King). What is the probability he will choose either a red card or a face card?

Example 2: Aurthur is choosing a number from 1 to 100 at random. What is the probability that he chooses a number that divisible by either 3 or 5?

Example 3: Let $f(x) = |x|$ and $g(x) = x^2$. If x is an integer in the interval from -2 to 2 , what is the probability that a value of x is in both the set of values for $f(x)$ and $g(x)$?



MEDIUM

1. If triangle ABC has side lengths of 1 and 3, what is the probability of choosing a possible integer side length in the integer set from 1 to 10?

Equation/Strategy: _____

Solve:

- (a) 0.2
 - (b) 0.25
 - (c) 0.3
 - (d) 0.4
 - (e) 0.5
-

2. What is the probability of choosing at random an odd number from the set of remainders when a perfect square is divided by 8?

Equation/Strategy: _____

Solve:

- (a) 0
- (b) $1/8$
- (c) $1/3$
- (d) $2/3$
- (e) $1/2$

ADVANCED

3. The probability of A happening is twice the probability of B happening and the probability of A or B happening is twice the probability of A happening. If the probability of B happening is greater than 0, what is the probability of A and B happening?

Equation/Strategy: _____

Solve:

- (a) 0.1
 - (b) 0.2
 - (c) 0.25
 - (d) 0.5
 - (e) 1
-

4. Sherry enters a raffle at school. If she buys x tickets, her chances of winning are 25%. If she wants to increase her chances of winning to 40%, what percentage of the original number of tickets sold will she need to purchase?

Equation/Strategy: _____

Solve:

- (a) 4%
- (b) 25%
- (c) 40%
- (d) 250%
- (e) 400%



PART II

SAT VERBAL

10

Strategies for Sentence Improvements and Sentence Errors



1. Strategies for Sentence Improvements and Sentence Errors

1 Strategies for Sentence Improvements and Sentence Errors

1.1 SAT Worksheet: Warm-Up

Directions: Please order the following types of questions on the SAT writing section from 1 to 4 where 1 is the most difficult type of question for you and 4 is the least difficult types of questions for you. Then, do the example of Improving Sentences and Sentence Errors on the sheet.

Improving Sentences

The travel guide is useful because it covers not just reviews and photos, but also tells you what and how to get to various destinations.

- (A) but also tells you what and how to get to various destinations.
- (B) but also they gives ways of getting to various destinations.
- (C) but also advice of what and how to get to various destinations.
- (D) but also tells you what to do and how to get to various destinations.
- (E) and also tells you what to do and how to get to various destinations.

Sentence Errors

Jean Rhys, whose Dominican background has influenced her writing, describes many details of life in the Caribbean Islands vividly in her novels and short stories. No Error

Paragraph Improvements

Essay



2 About the SAT Writing Section

Your score on the SAT writing section is dependent upon your performance in three sections, two multiple choice sections and one essay section. The essay section is the _____ on the SAT and consists of _____ essay assignment. You will have _____ minutes to complete the essay. We will focus on the essay in a later chapter.

In this section of the SAT manual, we will concentrate on the multiple choice sections.

There are two multiple choice sections, one with _____ questions to be completed in _____ minutes and one with _____ questions to be completed in _____ minutes.



3 Types of Writing Multiple Choice Questions

1. The first type of writing multiple choice questions is _____
 - In this type of question, one part of a sentence will be underlined and you will be asked to pick the version of the underlined part of the sentence.
 - This type of question is found in both the 25-minute and the 10-minute multiple choice sections.

2. The second type of writing multiple choice questions is _____
 - In this type of question, you will be asked to identify whether or not there is an error in the sentence given, and if so, circle the location of the error. You will not be asked to correct the error on the SAT.
 - This type of question is found in the 25-minute multiple choice section only.

3. The last type of writing multiple choice questions is _____
 - Approximately half of the questions are sentence improvement and sentence revision.
 - The other questions are paragraph or essay structure and logic questions.
 - There are a total of 6 paragraph improvement questions on the SAT, all in the 25-minute section.



4 Mastering Sentence Improvement and Sentence Error Questions

The SAT Writing multiple choice section may seem intimidating at first, as there is a lot of reading (particularly for the sentence improvement and paragraph improvement questions) as well as many questions to answer in each section. However, the SAT tests standard English grammar, which means that if students learn a handful of grammar rules – particularly the ones featured in this section – then they will be able to complete many questions in the SAT writing section carefully.

Remember, the SAT tests **proper grammar** as well **conciseness**. How we talk is not always grammatically correct, and therefore not the correct answer on the SAT. Be cautious of this, particularly on the later (more difficult) questions. We will address the issue of conciseness in the next chapter, but usually if you have narrowed a question down to two or three answer choices that are each grammatically correct, the correct answer is the shortest answer choice.

Verb tense, pronouns, misplaced modifiers, parallelism, faulty conjunctions, and idioms are the six most commonly missed errors on the SAT Writing multiple choice section. By reviewing these grammar concepts as well as completing the practice problems, you should be able to answer SAT Writing multiple choice questions more accurately.



5 Verb Tense

Verbs must agree with their subject in number. Many errors on the SAT writing section is related to subject-verb agreement and verb tense.

5.1 Subject-Verb Agreement

- This is manageable when sentences are straightforward.
- For example, fill in the following blanks: He _____ smart. They _____ smart.
- To make the questions more difficult, the SAT will separate the subject and the verb with prepositional phrases or descriptions with commas. An SAT question may also put the verb before the subject.
- For example: Stephen for more than two weeks _____ happy because of his most recent grades. To solve this type of question, identify the subject and cross out prepositional phrase. Then, identify the correct verb form.

Looking at it like this indicates that the subject is “Stephen” and so “is” is correct form of the verb.

- For example: The group, consisting of two adults and five children, _____ camping this weekend. To solve this type of question, identify the subject and cross out description (between the commas). Then, identify the correct verb form.

The subject is “the group” and so “is” is correct form of the verb.

- For example: Running _____ the girls’ favorite sport. To solve this type of question, rearrange the sentence so that the subject comes before the verb. Then, identify the correct verb form.

The sentence is re-arranged as “The girls’ favorite sport _____ running. “Therefore, the correct verb form is “is.”



6 SAT Worksheet: SAT Writing Multiple Choice Practice with Subject-Verb Agreement

Directions: In the following sentences, box the subject and circle the verb that agrees with the subject.

1. I never **have or has** long fingernails because I bit them.
2. Finding happiness from multiple sources **is or are** important.
3. The dolls in the storage closet **sits or sit** on the shelf.
4. Plastic engineering, a booming field in many countries, **have or has** many important applications.
5. Reading papers **is or are** the best part of my day.
6. The trails, which I climb daily, **widen or widens** towards the end.

6.1 Using the Correct Verb Tense

Knowing when to use different verb tenses are important for SAT. Sometimes, you can look for clues based on other part of the sentence. For example, “Based on his previous experiences, Jared decides/decided to pursue a career in education.”

It can be difficult to determine if something should be simple present, past, or future versus present perfect, past perfect, and future perfect. For example, when should you use “waited” versus “had waited”?

- We use the simple tenses when there is one year or date. Select the correct verb tense in the following sentence: World War II began/had begun in 1939.
- We use past perfect when an action has started and it is interrupted by another action (past tense). Select the correct verb tense in the following sentence: World War II occurred/had occurred for two years before the United States entered it in 1941.
- We use present perfect for an action that began in the past and continues to the present. Explain the difference between the following sentences:
 1. Scott had lived in New York for five years before he decided to move.
 2. Scott has lived in New York for five years, although he is currently considering moving.
 3. “The conditional (would) is used for hypothetical situations. The basic formula is If... were ... would.” If I *was/were* to win the lottery, then I *would* travel around the world.



6. SAT Worksheet: SAT Writing Multiple Choice Practice with Subject-Verb Agreement

The first sentence _____ whereas the second _____.

- A note about SAT grammar: “The conditional (would) is used for hypothetical situations. The basic formula is “*If . . . were . . . would*”. Select the correct verb tense in the following sentence: If I was/were to win the lottery, then I will/would travel around the world.

6.2 Sample SAT Practice Questions

1. The janitors are requiring to mop the floors, wipe the windows, and clean the chalkboard daily. No Error
A B C
D E
2. The teachers, inspired by the novel pedagogical techniques they learned at the conference, pledge to utilize these methods to improve their teaching. No Error
A B
C D E



7 Pronouns

Some common pronoun rules tested on the SAT Writing Section are agreement, unclear pronouns, and inconsistent point of view.

7.1 Agreement with the Antecedent

1. What is an antecedent? _____
2. Circle the antecedent and box the pronoun in the following sentence: Kenna the dog plays with her favorite chew toys daily.

7.2 Unclear Pronouns

Pronouns need to be clear regarding who or what they are referring to.

1. Emily and Kate are going to her house today. Why is this sentence incorrect?

2. She is going to teach them today. Why is this sentence incorrect?

3. The amusement park rides are full of mice, therefore we will avoid them. Why is this sentence incorrect?

4. Write a possible correction to the following sentence: The amusement park rides are full of mice, therefore we will avoid them.

7.3 Consistent Point of View

Each sentence or paragraph needs to have the same point of view. For example, the following sentence is incorrect:

If one wants to go to the store, then I recommend that you find a driver.

- **Correct:** If you want to go to the store, then I recommend that you find a driver.
- **Another correct version of this sentence is,** If one wants to go to the store, I recommend that one finds a driver.
- Circle the following choice that makes the sentence correct: You/one should never complain, even when one is given a difficult task.
- Why is the answer that you circled correct? _____



7.4 Sample SAT Practice Questions

1. As nervous as her mom was, the second grader was determined to walk to the bus stop by herself. No Error
A B C
D E
2. If I was to invent a time machine, then I would go back in time to the period around the Revolutionary War and learn firsthand what it was like to fight for freedom. No Error
A B C D E



8 Misplaced Modifiers

A modifier is a group of words describing a noun or pronoun. In proper grammar (a.k.a. on the SATs), modifiers need to be next to what they are describing.

For example,

- **Incorrect:** Running down the street, the trash can was in Lauren's way.
- The problem here is that we know Lauren is running down the street but the sentence implies that the trash can is running because trash can is what comes directly after the modifier.
- **Better but still wrong:** While running down the street, Lauren's way was blocked by a trash can. In this case Lauren's way appears to be running down the street.
- **Correct:** **While running down the street, Lauren had a trash can in her way.**
- Finally, we have Lauren, the subject, being modified and the modifier next to the subject.

8.1 SAT Worksheet: SAT Writing Multiple Choice Practice with Modifiers

Directions: Underline the modifier and then circle what the modifier is modifying. If the modifier is not next to what it is modifying, re-write the sentence so that the modifier is next to what it is modifying.

1. Since he is a gentleman, Adam is always willing to help others.

Re-write: _____

2. Having come down lightly throughout the morning, Sarah thought that she would be able to move her car through the snow.

Re-write: _____

3. Full of lights, we were impressed with the holiday tree.

Re-write: _____



8.2 Practice SAT Questions

1. By this time next year, we will have acquired ten new accounts and have opened two new offices abroad. No Error
A B C
D E

2. Dangling from the trees, we were frightened by the monkeys that tried to steal our sunglasses.
(A) Dangling from the trees, we were frightened by the monkeys that tried to steal our sunglasses.
(B) Dangling from the trees, the monkeys tried to steal our sunglasses, an action which frightened us.
(C) The monkeys frightened us when they tried stealing our sunglasses dangling from trees.
(D) Dangling from trees, the monkeys frightened us trying to steal our sunglasses.
(E) The monkeys, dangling from the trees, frightened us when they tried to steal our sunglasses.

9 Parallelism

Clauses within a sentence must have the same phrasing (parts of speech or verb tenses). This frequently happens to items in a list. Parallelism can also apply to the paragraph improvement section where consecutive sentences have similar structure.

For example,

1. Emily likes soccer, hockey, and going to parties.

What is wrong with this sentence?

Write a correct version of the sentence:

2. When at college, Emily likes to go to soccer games, football games, and play frisbee.

What is wrong with this sentence?

Write a correct version of the sentence:

3. Kelly likes to go to the mall, but riding on the mall's elevators scares her.

What is incorrect about this sentence?

Write a correct version of the sentence:

9.1 Practice SAT Questions

1. The boy spoke three languages fluently: French, Spanish, and Russian.

- (A) The boy spoke three languages fluently: French, Spanish, and Russian.
- (B) The fluent boy spoke three languages: French, Spanish, and Russian.
- (C) The boy spoke French, Spanish, and Russian fluently.
- (D) The boy spoke three languages fluently French, Spanish, and Russian.
- (E) The boy was able to speak three languages fluently: French, Spanish, and Russian.

2. Mary was walking towards the bus when she decides that she would prefer to take a cab instead. No Error
- A B C D
 E



10 Faulty Comparisons

Items being compared must have the same identity. For example, a dog can not be compared to another dog's toys. While this might sound easy, it isn't always easy because our brain is used to making the correct comparison even if it is written incorrectly on the page.

For example,

1. Spot is better than Ziggy's toys.

- The sentence is trying to compare Spot and Ziggy or Spot's toys and Ziggy's toys.
- The sentence is actually comparing Spot and Ziggy's toys.
- This sentence can be corrected at least two different ways. Spot's toys are better than Ziggy's toys. OR Spot's toys are better than Ziggy's.

2. Paul's pet rock is larger than Jim.

- What two things is the sentence trying to compare? _____
- What two things is the sentence actually comparing? _____
- Re-write the sentence so that it is grammatically correct (Note: there are at least two ways to do this.): _____

10.1 SAT Practice Questions

1. J.K. Rowlings books have inspired millions with stories of good triumphing over evil and the power of friendship, whereas the new author has not. No Error

A	B
C	D
E	
2. The cameraman told the celebrity that he should position himself closer to the camera.
No Error

A	B	C	D
E			



11 Word Choice

The errors can be wrong words. These can be in the form of

- idioms. What are idioms? _____

Fill in the correct preposition(s) after the verb:

1. to agree _____
2. to go ahead _____
3. to manage _____
4. to prefer _____
5. to prepare _____
6. to rebel _____
7. to rely _____
8. to be satisfied _____
9. to want _____

- commonly confused words. For example, when do you use the word “affect” instead of “effect”? _____

- incorrect word choice.

Fill in the correct word(s) in the phrase. Then, write a sentence that uses the phrase correctly. The first one has been done as an example:

1. as . . . as Sentence: The basketball player was as tall as the net.

2. decide between . . . _____

Sentence: _____

3. either . . . _____

Sentence: _____

4. neither . . . _____

Sentence: _____



11. Word Choice

5. not only . . . _____

Sentence: _____

6. rather . . . _____

Sentence: _____

11.1 Practice SAT Questions

1. The student wanted both to remain in Boston or move to the West Coast after graduation. No Error
A B C D
E
2. Over thirty million people were effected by the snowstorm, and to this day, many people
are frightened when the news says that there is a possibility of snow. No Error
A B
C D E
3. After waiting an hour for her friend, the woman finally arrived in the theater. No Error
A B C D
E



12 Other Common Errors

The following is a list of other common errors that you will discuss as a class. Then, circle and correct the error:

- Adverbs vs. Adjectives: _____

She worked diligent to ensure that the assignment was completed in a timely manner.

Correction: _____

- Comparatives vs. Superlatives: _____

He bought the more expensive suit in the store.

Correction: _____

- Sentence Fragments: _____

When Sam was headed to the store.

- Redundancy: _____

The thesis of the book was that in order to be happy, one should pursue one's passions and not compare their accomplishments to others because that will cause jealousy and anger rather than happiness.

Correction: _____

- Run-ons: _____

After Luke wrote a list of all of the chores that he wanted to accomplish for the week, he set out to complete each one with a renewed sense of purpose and pride and did not let himself get distracted by the fact that many of his friends thought that he could not accomplish everything he had written in such a short amount of time.

Correction: _____

- Passive Voice: _____

The newspaper article was turned in by the author an hour after the deadline.

Correction: _____



12.1 Practice SAT Questions

1. "Walk quick to the store, purchase the milk, and return home with it," the mother said
A B C
to her son D No Error

2. Between you and I, I think it is beneficial to wash your hair every day No Error
A B C D E

3. As strange though it sounds, I will miss waking up at in the morning to cook pancakes
A B C
and waffles for my children. No Error
D E

4. Each of the students demonstrate their anger at the school's policy regarding uniforms by
refusing to wear anything besides shirts and jeans last year. No Error
A B
C D E

5. When asked the question of what profession they wanted to enter, five students in the
class expressed the desire to become a superhero. No Error
A B
C D E

6. When one is planning to perform a piano recital, it is important that you practice every
A B C
day for at least thirty minutes. No Error
D E

7. Whenever Stephen participated in class, he expressed humor, acuity, and was funny. No Error
A B C D E

8. Ray Charles, a blind pianist and singer who sold millions of records, were the most popu-
A B C
lar artist of his time. No Error
D E

11

Sentence Improvements



1 SAT Worksheet: Warm-Up

Are you having trouble remembering what types of errors are tested in the SAT Writing section? Try this mnemonic device:

The most commonly tested and missed grammar points can be seen below. When you are answers sentence error or improvement questions, BE A CYCLOPS and always be keep one eye open for these most commonly missed grammar points. If you have already heard the BE A CYCLOPS mnemonic from another section, close your eyes and identify the grammar point that each letter refers to. Then, complete the exercise on the next page.

B is for “being”: The word “being” is commonly heard in speech but does not usually make for the best sentences.

E is for agrEEmEnt: Identify the subject and the verb that is associated with the subject. The verb needs to match the subject in number and gender. This means that the subject and the main verb need to be both singular or both plural.

A is for awful verb tense: Check when the action is happening and then if the given verb tense can be used to describe the time period that the action is happening.

C is for clause (aka commas towards the beginning of the sentence): Clauses at the beginning of sentences have a description, then a comma, then more words. The description must be describing the first word after the comma.

Y is for you, me, and other pronouns: If “you” is not in the underlined section, then it must be paired with “you” in the underlined section. If “one” or “someone” is not in the underlined section, then it must be paired with you in the underlined section. Also, make sure that pronouns like “it” or “they” clearly refer to the subject of the sentence.

C if for contrasts and other conjunction/connectors: Words like “and” are used to add another idea, however, words like “but” are used to show differences between things.

L is for list: If there is a list, all of the words must be the same part of speech and the same verb tense.

O is for “of” and commas that might separate the subject and the verb: The verb ending is dependent on the singularity or plurality of the subject.

P is for preposition: Make sure the preposition matches the word before it. To combat this, learn your idioms!

S is for short: Is the sentence as short as it can be without changing the meaning?



Directions: Write 5 sentence error questions from any five different categories in the list above. At least one should have no error. Then, switch with someone in the class so that they can solve your questions.

1.

2.

3.

4.

5.



2. Identify the Error or Errors in the Original Sentence

2 Identify the Error or Errors in the Original Sentence

If you can identify the error or errors in the original sentence before looking at the answer choices. This can help you identify if there is an error and if so, to determine which changes need to be made in the correct answer choice.

For example, try to identify the error in the following sentences:

It is extremely advantageous if you can identify the error or errors in the original sentence before looking at the answer choices and then think of possible corrections. These can help you to 1) Eliminate answer choice “A” as the best sentence and 2) eliminate incorrect answer choices with the same error as the original sentence quickly.

Directions: Determine if the sentences below have an error in the underlined region and, if so, circle it. Write the type of error on the first line and a sample correction on the second line. If you don't think there is an error, write “No error” as the error type and move to the next sentence. The first question has been done for you.

1. The Boston Common is older than it but still just as well-maintained as Central Park.

Type of error(s): unclear pronoun, not concise

Sample correction: older than but still just as well-maintained as Central Park.

2. While most people detest high prices for food items, but organic food sells well despite the increased cost.

Type of error(s): _____

Sample correction: _____

3. With determination and diligence, anyone can achieve a high score on the SAT test.

Type of error(s): _____

Sample correction: _____

4. The movie featured many well-respected actors and was winning many awards for acting, directing, producing, and writing.

Type of error(s): _____

Sample correction: _____



5. Many educators believe that technology of the sort that helps monitor student progress and deliver feedback to parents could be helpful in increasing test performance.

Type of error(s): _____

Sample correction: _____

6. After waiting an hour for her friend, the woman finally arrived in the theater donning a red dress.

Type of error(s): _____

Sample correction: _____

7. Overjoyed that he was accepted his first choice college, Stephen is currently being slightly ridiculous.

Type of error(s): _____

Sample correction: _____

8. Many people think that Americans take the right to vote for granted, and I think that it is the right of Americans to not exercise their right to vote.

Type of error(s): _____

Sample correction: _____

9. The bank robbers threatened the tellers by waving their guns, one of the criminals held a teller hostage until the police arrived.

Type of error(s): _____

Sample correction: _____

10. After a major political event such as September 11th, the president will address the nation, with his purpose being to inform and comfort the public.

Type of error(s): _____

Sample correction: _____



2. Identify the Error or Errors in the Original Sentence

11. Mary's secret, the whereabouts of the items that had been missing for weeks, were more compelling than Jeff's.

Type of error(s): _____

Sample correction: _____



3 Strategy: Eliminate Incorrect Answers then Find the Most Concise Answer

On sentence improvements, the correct answer will be grammatically correct. Therefore, before you see if an answer choice makes sense in the original sentence, determine if it is grammatically correct. If not, then you can eliminate this right away.

In SAT sentence improvement problems, you should try to eliminate the 2-3 answer choices that are grammatically incorrect so that you are left with 2-3 other answer choices. The SAT sentence improvement section is looking for the “best” sentence, one that is concise and precise. In SAT world, this translates to the sentence that is not only grammatically correct AND concise. How does the SAT measure “conciseness”? By length.

Therefore, the answer choice that you are looking for is grammatically correct and short without changing the meaning of the original sentence. The latter part means that it can not be so short that it is missing a key part of the original sentence, but this is not usually an issue on sentence improvement problems.

Find the shortest answer. Then, check if it preserves the original meaning of the sentence by reading this answer choice in place of the underlined part of the original sentence. If so, this answer choice is the correct answer, so you should mark it.

Directions: Eliminate the answer choices that are grammatically incorrect for the following sentences. After you have eliminated an answer choice, write why it was incorrect on the line. Then, determine the correct answer using the strategy presented above. The first one has been done for you.

1. The Boston Common is older than it but still just as well-maintained as Central Park.

- (A) older than it but still just as well-maintained as Central Park
Eliminate because of ambiguous pronoun
- (B) older than Central Park but just as well-maintained.
Correct. It is grammatically correct and the most concise.
- (C) older than Central Park; it is just as well-maintained.
Eliminate because of ambiguous pronoun
- (D) older and it is just as well-maintained as Central Park.
Grammatically correct but not as concise as (B).
- (E) just as comfortable as Central Park and it is older than it.
Eliminate because of ambiguous pronoun



3. Strategy: Eliminate Incorrect Answers then Find the Most Concise Answer

2. While most people detest high prices for food items, but organic food sells well despite the increased cost.

(A) for food items, but organic food sells well despite the increased cost.

(B) for food items, organic food sells well despite the increased cost.

(C) for food items, many people still purchase organic food despite the increased cost.

(D) for food items, despite the increased cost, organic food sells well.

(E) for food, but organic food sells well despite the increased cost.

3. With determination and diligence, anyone can achieve a high score on the SAT test.

(A) With determination and diligence, anyone can achieve a high score on the SAT test.

(B) With determination and diligence, anyone is achieving a high score on the SAT test.

(C) Anyone full of determination and diligence achieves a high score on the SAT test.

(D) Determination and diligence can help anyone who wants to achieve a high score on the SAT test.

(E) Anyone can achieve a high score on the SAT test with determination and diligence.

4. The movie featured many well-respected actors and was winning many awards for acting, directing, producing, and writing.



(A) featured many well-respected actors and was winning many awards for

(B) featured many well-respected actors, was winning many awards for

(C) featured many actors that were well-respected and won many awards for

(D) had featured many well-respected actors and won many awards for

(E) featured many well-respected actors and won many awards for

5. Many educators believe that technology of the sort that helps monitor student progress and deliver feedback to parents could be helpful in increasing test performance.

(A) Many educators believe that technology of the sort that

(B) Many educators believe technology that

(C) Many educators believe that technology which

(D) A group of educators believe that technology that

(E) Many educators believe that technology that

6. After waiting an hour for her friend, the woman finally arrived in the theater donning a red dress.

(A) arrived in the theater donning a red dress.



3. Strategy: Eliminate Incorrect Answers then Find the Most Concise Answer

(B) donned a red dress and arrived in the theater.

(C) arrived in the theater and donned a red dress.

(D) arrived in the theater wearing a red dress.

(E) arrived at the theater donning a red dress.

7. Overjoyed that he was accepted his first choice college, Stephen is currently being slightly ridiculous.

(A) Stephen is currently being slightly ridiculous

(B) Stephen is currently slightly ridiculous

(C) Stephen is acting slightly ridiculous.

(D) slightly ridiculous Stephen is being.

(E) currently Stephen is being slightly ridiculous.

8. Many people think that Americans take the right to vote for granted, and I think that it is the right of Americans to not exercise their right to vote.

(A) Many people think that Americans take the right to vote for granted, and I think that it is the right of Americans to not exercise their right to vote.



(B) Americans take the right to vote for granted according to many people, and I think that it is the right of Americans to not exercise their right to vote.

(C) Many people think that Americans had taken the right to vote for granted, and I think that it is has been the right of Americans to not exercise their right to vote.

(D) Many people think that Americans take the right to vote for granted, but I think that it is the right of Americans to not exercise their right to vote.

(E) Americans take the right to vote for granted, yet it is the right of Americans to not exercise their right to vote.

9. The bank robbers threatened the tellers by waving their guns, one of the criminals held a teller hostage until the police arrived.

(A) threatened the tellers by waving their guns, one of the criminals held a teller hostage

(B) threatened the tellers by waving their guns. One of the criminals held a teller hostage

(C) threatened the tellers by waving their guns; one of the criminals held a teller hostage

(D) waving their guns to threat the tellers. One of the criminals held a teller hostage

(E) waved their guns to threat the tellers; one of the criminals held a teller hostage

10. After a major political event such as September 11th, the president will address the nation, with his purpose being to inform and comfort the public.



3. Strategy: Eliminate Incorrect Answers then Find the Most Concise Answer

(A) the president will address the nation, with his purpose being to inform and comfort the public.

(B) the president will address the nation so that he can inform and comfort the public.

(C) the president will address the nation to inform and comfort the public.

(D) the president addresses the nation, with his purpose being to inform and comfort the public.

(E) the president will address the nation, with the purpose to inform and comfort the public.

11. Mary's secret, the whereabouts of the items that had been missing for weeks, were more compelling than Jeff's.

(A) were more compelling than Jeff's.

(B) were more compelling than Jeff's secret.

(C) was more compelling than what Jeff said.

(D) were more compelled than Jeff's.

(E) was more compelling than Jeff's.



4 Practice with SAT Sentence Errors and Improvements

4.1 SAT Warm Up Sheet

Directions: Use the strategies that we have discussed to answer the following Sentence Improvement and Error SAT Questions.

1. Dangling from the trees, we were frightened by the monkeys that tried to steal our sunglasses.

- (A) we were frightened by the monkeys that tried to steal our sunglasses.
- (B) we had been frightened by the monkeys that tried to steal our sunglasses.
- (C) the monkeys frightened us because they tried to steal our sunglasses.
- (D) we were frightened by the monkeys who had tried to steal our sunglasses.
- (E) the monkeys that tried to steal our sunglasses frightened us.

In SAT sentence improvement problems, you should try to eliminate the 2-3 answer choices that are grammatically incorrect so that you are left with 2-3 other answer choices. The SAT sentence improvement section is looking for the “best” sentence, one that is concise and precise. In SAT world, this translates to the sentence that is not only grammatically correct AND concise. How does the SAT measure “conciseness”? By length.

Therefore, the answer choice that you are looking for is grammatically correct and short without changing the meaning of the original sentence. The latter part means that it can not be so short that it is missing a key part of the original sentence, but this is not usually an issue on sentence improvement problems.

Directions: Go back to the previous exercise and look at the answer choices that you haven’t yet eliminated. Find the shortest answer. Then, check if it preserves the original meaning of the sentence by reading this answer choice in place of the underlined part of the original sentence. If so, this answer choice is the correct answer, so you should mark it. The first sentence is done as an example.

2. When asked why she became a journalist, the woman responded that she wanted to help tell peoples stories and wanted to learn more about the world.

- (A) wanted to learn more about the world.
- (B) had wanted to learn more about the world.
- (C) wanted to learn more about the world
- (D) learning more about the world was what she wanted.
- (E) wants to learn more about the world.



4. Practice with SAT Sentence Errors and Improvements

3. The rainbow that occurred after the storm is mesmerizing to me, and I keep wanting to look at it.
- (A) mesmerizing to me, and I keep wanting to look at it.
(B) mesmerizing to me.
(C) mesmerizing and looking at it is what I want to keep doing.
(D) mesmerizing.
(E) mesmerizing to me, and I want to keep looking at it.
4. The decrease of water resources are considered to be one of the major threats to global peace, according to the United Nations.
- (A) The decrease of water resources are considered to be one of the major threats to global peace, according to the United Nations.
(B) The United Nations considers the decrease of water resources to be one of the major threats to global peace.
(C) According to the United Nations, the decrease of water resources is considered to be one of the major threats to global peace.
(D) Decreasing water resources are considered to be one of the major threats to global peace, according to the United Nations.
(E) The United Nations consider decreasing water resources to be one of the major threats to global peace.
5. As I had stated in a previous email, if I was to have attended the meeting, then I would have a more descriptive answer for you.
- (A) if I was to have attended the meeting, then I would have a more descriptive answer for you.
(B) I would have a more descriptive answer for you if I was attending the meeting.
(C) if I attended the meeting, then I might have been able to presente a more descriptive answer for you.
(D) if I were to have attended the meeting, then I would have a more descriptive answer for you.
(E) if I was to have a more descriptive answer for you then I would attend the meeting.



6. As a graduate student at Pittsburgh University, where Robert was studying microbiology, he discovered that his true passion was science communication.
- (A) As a graduate student at Pittsburgh University, where Robert was studying microbiology, he discovered that his true passion was science communication.
- (B) Robert had discovered that his true passion was science communication when he was being a a microbiology graduate student at Pittsburgh University.
- (C) At Pittsburgh University studying microbiology, had Robert discovered that this true passion was science communication.
- (D) Studying microbiology at Pittsburgh University was when Robert discovered that this true passion was science communication.
- (E) Robert was a microbiology graduate student at Pittsburgh University when he discovered that his true passion was science communication.
7. Selecting a major at a large university may not be as easy as it is at smaller colleges.
- (A) as easy as it is
- (B) as easy as they are
- (C) easier than
- (D) easier than it is
- (E) as easy as
8. The airplane company argued that we should have known that our flight was going to depart an hour earlier, despite the fact that no online schedules had been updated before.
- (A) despite the fact that no online schedules had been updated before.
- (B) despite the fact that no online schedules had been updated before the flight.
- (C) despite being that no online schedules had been updated before.
- (D) in spite of the fact that no online schedules had been updated before.
- (E) despite the fact that the company were not updating the online schedules before.



4. Practice with SAT Sentence Errors and Improvements

9. Both genetic and environmental factors are thought to contribute to complex diseases such as asthma but scientists have had trouble identifying all of these causes despite numerous studies.
- (A) are thought to contribute to complex diseases such as asthma but scientists have had trouble identifying
- (B) is thought to contribute to complex diseases such as asthma. Scientists have trouble identifying
- (C) are thought to contribute to complex diseases such as asthma; however, scientists have had trouble identifying
- (D) are thought to be contributing to complex diseases such as asthma. Scientists have had trouble identifying
- (E) are thought to be contributing to complex diseases such as asthma. Despite this, scientists have had trouble identifying
10. The new toy was deemed unsafe by the Food and Drug Administration, since such is the case, there are very few that remain in stores.
- (A) Administration, since such is the case, there are very few that remain in stores.
- (B) Administration. Since such is the case, there are very few that remain in stores.
- (C) Administration, since this is the case, there are very few that remain in stores.
- (D) Administration. So there are very few that remain in stores.
- (E) Administration, so there are very few that remain in stores.
11. Because textbooks are so profitable and difficulty finding an author is the reason why there are very few open source textbooks.
- (A) Because textbooks are so profitable and difficulty finding an author are the reasons why
- (B) Because textbooks are so profitable and difficulty finding an author means that
- (C) The profits from textbooks and difficulties finding authors are the reasons why
- (D) Textbooks are so profitable and there are difficulties finding authors is the reason why
- (E) Because of textbook profits and difficulties from finding authors,



12. The supermodel is having to deal with competition from younger, less-established models
on a daily basis. No Error
13. Although only a handful of items may be recovered from the archaeological sites,
it is important to maintain them so that we can learn about these ancient societies.
No Error
14. Self-conscious about her short stature, Leila often wore high heels at work. No Error
15. Beaches with sufficient trash receptacles often experience have less health and sanitation
issues during the summer. No Error
16. When we return to school, either you can get a ride home with your parents and you
can wait for the bus. No Error
17. Ben was hugging his friends and thanked his teachers after it was announced that he won
the prestigious award. No Error
18. After studying for the examination for a year, Alex felt that he was prepared at all topics
that would be tested. No Error
19. Cats and dogs are popular and satisfactory pets, but I think that cats are the most inde-
pendent and dogs are nicer. No Error
20. The cashier explained to me that there had been a sale on salad dressings but it ended
last week. No Error
21. Despite their popularity, the stories of the Loch Ness Monster have never been proved.
No Error

4. Practice with SAT Sentence Errors and Improvements

22. The commercials written by the advertising agency in New York are more compelling than
the marketing firm in Seattle. No Error
23. Although he had been somewhat involved in the planning, John was still surprised when
the day of his party had arrived. No Error
24. I feel that the presentation given by my boss and I will demonstrate the competitive
advantages of the new product. No Error
25. Nicole had swam three miles in the lake each day to prepare for an upcoming triathlon.
No Error
26. Having been in his current role for two years, Greg knew that he needed to work
efficient to impress his boss and receive a promotion. No Error
27. The house, that is located on Jackson Street, will be put up for sale at the end of this
month because the current owners are moving to another state. No Error
28. If one needs transportation to the city, you can drive a car, ride a bus, or walk. No Error
29. The young politician is regarded to be one of the most compassionate yet efficient
member of Congress. No Error



5 Correcting Sentence Error and Improvement Questions

5.1 SAT Warmup Worksheet

Directions: Correct your incorrect answers from the previous SAT Worksheet. Label why your answer was incorrect (using one of the five classifications above). Then, write what you think the correct answer is and why.

Question #	Why My Answer is Incorrect	Correct Answer	Type of Error/Why This Answer is Correct



5. Correcting Sentence Error and Improvement Questions

Directions: The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. Select the choice that completes the sentence most effectively.

*In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence – clear and precise, without awkwardness or ambiguity. **After you have selected the correct answer choice, you need to mark why the other four answer choices are incorrect, just like in strategies 1-3.***

1. When asked why she became a journalist, the woman responded that she wanted to help tell peoples stories and loved to be on camera.

(A) _____

(B) _____

(C) _____

(D) _____

(E) _____



12

Four Strategies to Beat Paragraph Improvements



1. SAT Worksheet: Warm-Up

1 SAT Worksheet: Warm-Up

Directions: Use an SAT Practice Test or Book to Answer the Following Questions.

1. How many sections of the SAT practice test contain paragraph improvement questions?

2. In the sections that contain paragraph improvement questions, how many sentence error and sentence improvement questions are also included in the section? How many total questions are there? _____

3. In the sections that contain paragraph improvement questions, how much time do you have to complete all of the questions? _____

4. How many paragraph improvement questions are there in an SAT practice test?

5. How do you solve paragraph improvement questions? Which strategies do you use?



The SAT writing section always includes 6 questions dealing with paragraph improvement. Here's the general strategy for approaching paragraph improvement questions:

2 Skim the Passage

The writing section is less about comprehension and more about grammar and sentence relationships. With practice, it'll be easy to deduce a lot of answers without reading the full passage. In fact, answering questions as you go along will often give you enough context to answer other ones. As you are reading the passage and notice an error, then you might want to mark that sentence. This can be helpful because one of the questions following the passage will probably ask about this error. At the same time, don't spend too much time reading or looking for errors.

Unlike the other parts of the writing section, these questions do not ascend in difficulty as you go. In fact, they tend to go in chronological order as they appear in the passage. Because some of the easier questions may be placed at the end, it's important that you get to as many questions as possible.

When you are reading the passage, note the purpose of each paragraph. Usually paragraph one will introduce the topic and the following paragraph(s) will go into more depth about something presented in the first paragraph and then conclude the essay. Thinking about the structure of the essay and how different parts of the passage are presented can help with the general or organizational questions about the passage.

2.1 Practice This Strategy

Directions: Quickly skim the following passage. Mark any errors or places where the passage could be improved.

1 Animals experience stress if they are not in an environment where they can express their evolved preferences. 2 Therefore, Brian Hare, head of the Canine Cognition Center at Duke University argues that scientists should take into account the laboratory animal's stressors when designing protocols so that they can minimize these events and therefore collect data that is more reflective of the animal's natural responses. 3 The foundation of the preference based approach is that animals should be treated based on the preferences of their species rather than more sweeping regulations. 4 Since wild minks spend the majority of time in and around water, when a paper written by Dr. Mason in 2001 gave farm-raised minks a choice of a spacious room with preferred foods and toys or a smaller one with a water pool, the minks overwhelmingly chose the latter. 5 As a "proof of concept", the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming.

6 The Canine Cognition Center uses the preference based approach by recruiting human volunteers with their pet dogs to participate in research studies. 7 Motivated by love and interest in dogs, many are interested in bringing their dog to the Biological Sciences building to



2. Skim the Passage

participate. **8** Because domestic dogs like to be near humans, Hare contends these results are more accurate than if the dogs were to be raised in animal storage facilities.

9 There are, however, sources of bias in these experiments that have been acknowledged by other scientists. **10** In addition to the limitations of developing investigator-subject relationships, it can be tempting to think that because there are lots of different dogs being tested, the results can be generalized to all dogs. **11** There is a sample bias because the people that bring their dogs to be tested at the Center are more likely to take good care of their dogs and be at least somewhat interested in dog cognition. **12** The investigators can not control for the past experiences of the dogs being tested, which is a potential confounding variable in their experiments.

Directions: Answer the questions about the passage. You should be asking yourself these types of questions after you skim the paragraph improvement passage on the real SAT test.

1. What is the thesis or main idea of the passage? _____

About the organization of the passage

2. What is the purpose of paragraph 1? _____

3. What is the purpose of paragraph 2? _____

4. What is the purpose of paragraph 3? _____



3 Determine the Type of Question You're Being Asked

There are three main types of paragraph improvement questions:

1. Grammar Revision

These typically ask you for the best version of an underlined portion.

- For example: Which is the best version of the underlined portion of sentence 2 (reproduced below)?
- The most common grammar errors that show in paragraph improvement are: run-on sentences, pronoun reference, misplaced modifiers, and subject-verb agreement.

2. Combination/Insertion

- These questions require you to choose the best way to insert or combine certain words and sentences. They test your understanding of sentence relationships. There are many ways one sentence can relate to the next. For example, one expresses a different view than the other, one summarizes the other, one supports the other, and one presents a specific case of the other.
- Your job is to figure out the relationship and choose the answer that best expresses that relationship.
- TIP: Pay attention to leading phrases separated by commas. Not only are they the most frequent place for transitions but they will also tell you the most about how one sentence relates to the previous one.

3. Paragraph Relationship

- For example, *Which of the following would be the best sentence to introduce the third paragraph?*
(A) ...
(B) ...
(C) ...
(D) ...
(E) ...

3.1 Practice This Strategy

Directions: Read the following questions and label the type of question.

1. Where is the best place to insert the following sentence?

Type of Question: _____



3. Determine the Type of Question You're Being Asked

2. Which of the following is the best revision of sentence 5 (reproduced below)?

Type of Question: _____

3. Of the following, which is the best way to phrase sentence 8 (reproduced below)?

Type of Question: _____

4. Which revision appropriately shortens sentence 10 (reproduced below)?

Type of Question: _____

5. Which of the following, if placed after sentence 11, would be the most effective concluding sentence for the essay?

Type of Question: _____



4 Read the Lines Relevant to the Question

Once you've determined the question type, you may need to read some lines in the passage for context. The relevant lines will typically be either a sentence or two above or below the target sentence. Sometimes, it will be necessary for you to read the entire paragraph.

For questions that ask about the whole passage (questions about the main idea, title, thesis, etc.), it is important to consider the entire passage. Many answer choices will only encompass information from one or two paragraphs rather than the passage as a whole.



5 Develop Your Own Answer Before Looking at the Answer Choices

Making this a habit will not only promote clear thinking but also insulate you from being swayed by tempting but incorrect answer choices.

5.1 Practice This Strategy

Directions: Read the following passage. Then, write what you think could be a plausible correct answer for the questions that follow.

1 Animals experience stress if they are not in an environment where they can express their evolved preferences. 2 Therefore, Brian Hare, head of the Canine Cognition Center at Duke University argues that scientists should take into account the laboratory animal's stressors when designing protocols so that they can minimize these events and therefore collect data that is more reflective of the animal's natural responses. 3 The foundation of the preference based approach is that animals should be treated based on the preferences of their species rather than more sweeping regulations. 4 Since wild minks spend the majority of time in and around water, when a paper written by Dr. Mason in 2001 gave farm-raised minks a choice of a spacious room with preferred foods and toys or a smaller one with a water pool, the minks overwhelmingly chose the latter. 5 As a "proof of concept", the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming.

6 The Canine Cognition Center uses the preference based approach by recruiting human volunteers with their pet dogs to participate in research studies. 7 Motivated by love and interest in dogs, many are interested in bringing their dog to the Biological Sciences building to participate. 8 Because domestic dogs like to be near humans, Hare contends these results are more accurate than if the dogs were to be raised in animal storage facilities.

9 There are, however, sources of bias in these experiments that have been acknowledged by other scientists. 10 In addition to the limitations of developing investigator-subject relationships, it can be tempting to think that because there are lots of different dogs being tested, the results can be generalized to all dogs. 11 There is a sample bias because the people that bring their dogs to be tested at the Center are more likely to take good care of their dogs and be at least somewhat interested in dog cognition. 12 The investigators can not control for the past experiences of the dogs being tested, which is a potential confounding variable in their experiments.

1. Where is the best place to insert the following sentence?

For example, animal cages in laboratory facilities generally do not contain pools.

My answer: _____



Chapter 12: Four Strategies to Beat Paragraph Improvements

2. Which of the following is the best revision of sentence 5 (reproduced below)?

As a “proof of concept”, the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming.

My answer: _____

3. Of the following, which is the best way to phrase sentence 8 (reproduced below)?

Because domestic dogs like to be near humans, Hare contends these results are more accurate than if the dogs were to be raised in animal storage facilities.

My answer: _____

4. Which revision appropriately shortens sentence 9 (reproduced below)?

There are, however, sources of bias in these experiments that have been acknowledged by other scientists.

My answer: _____

5. Which of the following, if placed after sentence 11, would be the most effective concluding sentence for the essay?

My answer: _____



6 SAT Worksheet: Paragraph Improvement Practice

Directions: Reading the following essay and complete the questions that follow:

Passage 1:

1 Animals experience stress if they are not in an environment where they can express their evolved preferences. 2 Therefore, Brian Hare, head of the Canine Cognition Center at Duke University argues that scientists should take into account the laboratory animal's stressors when designing protocols so that they can minimize these events and therefore collect data that is more reflective of the animal's natural responses. 3 The foundation of the preference based approach is that animals should be treated based on the preferences of their species rather than more sweeping regulations. 4 Since wild minks spend the majority of time in and around water, when a paper written by Dr. Mason in 2001 gave farm-raised minks a choice of a spacious room with preferred foods and toys or a smaller one with a water pool, the minks overwhelmingly chose the latter. 5 As a "proof of concept", the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming.

6 The Canine Cognition Center uses the preference based approach by recruiting human volunteers with their pet dogs to participate in research studies. 7 Motivated by love and interest in dogs, many are interested in bringing their dog to the Biological Sciences building to participate. 8 Because domestic dogs like to be near humans, Hare contends these results are more accurate than if the dogs were to be raised in animal storage facilities.

9 There are, however, sources of bias in these experiments that have been acknowledged by other scientists. 10 In addition to the limitations of developing investigator-subject relationships, it can be tempting to think that because there are lots of different dogs being tested, the results can be generalized to all dogs. 11 There is a sample bias because the people that bring their dogs to be tested at the Center are more likely to take good care of their dogs and be at least somewhat interested in dog cognition. 12 The investigators can not control for the past experiences of the dogs being tested, which is a potential confounding variable in their experiments.

1. Where is the best place to insert the following sentence?

For example, animal cages in laboratory facilities generally do not contain pools.

- (A) After sentence 2
- (B) After sentence 3
- (C) After sentence 4
- (D) After sentence 5
- (E) After sentence 6



2. Which of the following is the best revision of sentence 5 (reproduced below)?

As a “proof of concept”, the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming.

- (A) As a “proof of concept”, the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming.
- (B) As a “proof of concept”, the cortisol levels, which are frequently used as a measure of stress, of the minks with access to the pool were significantly lower after swimming.
- (C) As a “proof of concept”, the cortisol levels (used as a measure of stress) of the minks with access to the pool were significantly lower after swimming than before.
- (D) The minks with access to the pool were significantly lower after swimming.
- (E) As a “proof of concept”, the mink’s cortisol levels (used as a measure of stress) were significantly lower after swimming than before.

3. Of the following, which is the best way to phrase sentence 8 (reproduced below)?

Because domestic dogs like to be near humans, Hare contends these results are more accurate than if the dogs were to be raised in animal storage facilities.

- (A) (as it is now)
- (B) Because domestic dogs like to be near humans, Hare designs experiments so that domestic dogs are near humans and contends that since the dogs like to be near humans, the results collected are more accurate than if the dogs were to be raised in animal storage facilities and then tested.
- (C) Because domestic dogs like to be near humans, Hare contends that these results are more accurate than if the dogs had been raised in animal storage facilities.
- (D) Because domestic dogs like to be near humans, Hare contends that the results collected with this in mind are more accurate than if the dogs were to be raised in animal storage facilities and then tested.
- (E) Hare contends these results are more accurate than if the dogs were to be raised in animal storage facilities because domestic dogs like to be near humans.

4. Which revision appropriately shortens sentence 9 (reproduced below)?

There are, however, sources of bias in these experiments that have been acknowledged by other scientists.

- (A) Delete “however”
- (B) Delete “sources of bias”
- (C) Delete “in these experiments”



6. SAT Worksheet: Paragraph Improvement Practice

- (D) Delete “that have been acknowledged”
(E) Delete “by other scientists”
5. Which of the following, if placed after sentence 11, would be the most effective concluding sentence for the essay?
- (A) Despite some limitations of the preference based approach, it appears to be a good alternative to animal storage and testing typically opposed to by animal advocates.
(B) These limitations mean that all results discovered at the Canine Cognition Center are invalid.
(C) The preference based approach is opposed by many scientists.
(D) The Canine Cognition Center is an outstanding examples of Duke’s many innovative approaches to research.
(E) Interestingly, a high percentage of people that bring their dogs to the Canine Cognition Center bring their dogs back for another study.

Passage 2:

1 Familial searching is when law enforcement gets a genetic sample from the criminal at the crime scene and compares the genetic sample to genetic samples that are known (usually they are stored in databases) to see if the criminal’s sample is very similar to someone’s genetic information already in a database. **2** The goal of this is to see if the sample in the database could be the sample of a close relative such as a parent, offspring, or sibling of the person that committed the crime, which could help narrow down the number of suspects. **3** Familial searching was used in the Grim Sleeper case. **4** The Grim Sleeper was the name given to a serial criminal who was difficult to identify for many years. **5** The genetic sample found on one survivor was put through the database. **6** They did not find an exact match but they found that the sample was similar to that of a man named Christopher Franklin. **7** From this, the law enforcement decided that it was likely that the Grim Sleeper was related to Christopher Franklin. **8** They got the DNA of Franklin’s father from a discarded napkin and plate, and the sample was a match to the crime scene sample so they were able to convict his father.

9 As of 2010, four states use familial searching. **10** Many Americans are proponents of the expression, “my rights end where yours begin.” **11** As a result, some people support the use of familial searching in severe crimes, including murder. **12** They cite the reason that the safety of the victim and other innocent civilians should be prioritized over the privacy of the criminal and their family. **13** In this group, there are divisions as to whether familial searching should be used for crimes that are not as dangerous like misdemeanors because these types of crimes do not pose as dangerous threats to society. **14** Issues around privacy rights, particularly those surrounding familial searching, are extremely controversial.



1. In context, which of the following phrases is best to insert at the beginning of sentence 3?

- (A) Likewise,
- (B) Furthermore,
- (C) Still,
- (D) Nevertheless,
- (E) For instance,

2. Which of the following revisions is most needed in sentence 6 (reproduced below)?

They did not find an exact match but they found that the sample was similar to that of a man named Christopher Franklin.

- (A) Insert “In addition” at the beginning of the sentence
- (B) Delete “that of a man named”
- (C) Change “They” at the beginning of the sentence to “Law enforcement”
- (D) Delete “to that of a man named Christopher Franklin”
- (E) Change “found” to “had found”

3. Of the following, which is the best way to revise and combine sentences 11 and 12 (reproduced below)?

As a result, some people support the use of familial searching in severe crimes, including murder. They cite the reason that the safety of the victim and other innocent civilians should be prioritized over the privacy of the criminal and their family. .

- (A) As a result, some people support the use of familial searching in severe crimes including murder because they believe that the safety of the victim and other innocent civilians should be prioritized over the privacy of the criminal and their family.
- (B) As a result, some people support the use of familial searching in severe crimes, including murder, due to the safety of the victim and other innocent civilians may be prioritized over the privacy of the criminal and their family.
- (C) As a result, some people support the use of familial searching in severe crimes, including murder because they do not recognize the right to privacy of the criminal and their family.
- (D) As a result, some people support the use of familial searching in severe crimes including murder since they believe that the safety of the victim and other innocent civilians should be the highest priority.



6. SAT Worksheet: Paragraph Improvement Practice

- (E) As a result, some people support the use of familial searching in severe crimes, including murder; citing the reason that the safety of the victim and other innocent civilians should be prioritized over the privacy of the criminal and their family.
4. In context, which of the following is the best version of sentence 13 (reproduced below)?
- In this group, there are divisions as to whether familial searching should be used crimes that are not as dangerous like misdemeanors because these types of crimes do not pose as dangerous threats to society.*
- (A) In this group, there are divisions as to whether familial searching should be used crimes that are not as dangerous like misdemeanors because these types of crimes do not pose as dangerous threats to society
- (B) In this group, there are divisions as to whether familial searching should be used crimes that are not as dangerous like misdemeanors because these types of crimes do not pose as dangerous threats to society as violent crimes.
- (C) In this group, there are divisions as to whether familial searching should be used crimes that are not as dangerous like misdemeanors. Some argue that they should not be because these types of crimes do not pose as dangerous threats to society.
- (D) In this group, there are divisions as to whether familial searching should be used crimes that less dangerous. Some argue that familial searching should not be used in crimes like misdemeanors because these crimes are not as dangerous as violent crimes.
- (E) In this group, there are divisions as to whether familial searching should be used in less dangerous crimes like misdemeanors. Some argue that familial searching should not be used in these crimes because the criminals are not threats to society.
5. Which of the following sentences should be omitted to improve the unity of the second paragraph?
- (A) Sentence 9
- (B) Sentence 10
- (C) Sentence 12
- (D) Sentence 13
- (E) Sentence 14

Passage 3:

1 Many high school students and parents find it very confusing and stressful to create a list of colleges to visit or to apply to. 2 As a result, it can be tempting to apply to colleges with



“big names” or famous alumni or ones that they have heard are “good” from friends or the media. **3** While these sources may be good to start with, there are more important factors to consider. **4** Pondering these factors can help to narrow down university choices and also better ensure that the student is successful after they enroll at the university. **4** It is important to note that these selections are personal and unique to every student and as a result the “right fit” college for one student may not be the best choice for another student.

5 There are many academic factors to consider when choosing a university. **6** It is important that the college matches a student’s academic interests and goals as well as their learning style. **7** While each college has some mandatory classes, university students also have much more freedom to choose classes than those in high school. **8** As a result, it is important to find colleges that have courses in areas of study that one finds interesting. **9** To begin this process, students should consider their current academic interests by asking themselves questions such as, “what classes am I interested in?” **10** While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match these interests, some schools are “liberal arts” whereas others are more focused in research or another topic, such as engineering or business.

11 Students may have preferences about non-academic aspects of college. **12** For example, some students may want a rural campus whereas others might want to attend a university in a city. **13** Students can also consider how far from home they want the college to be and narrow down colleges based on location. **14** Parents can also obtain safety records for each college from the college admissions office. **15** Students should also ask themselves if they want a small, medium, or large college, what sorts of activities or sports are on campus, and the level of diversity on campus. **16** If a student is unsure of their preferences, then they should visit colleges of different sizes and settings that are nearby and see which environment they prefer. **17** The facilities and design of the college may be important to some students. **18** Financial facts can affect the college search.

1. Which of the following is the strongest thesis for the passage?
 - (A) All students should attend college
 - (B) People should select a college based on student’s interests and preferences
 - (C) Students may prefer colleges in different locations, such as rural or city campuses.
 - (D) Students should select “big name” colleges, as they enjoy advantages such as good reputations and famous alumni.
 - (E) There are many factors that determine a school’s ranking in national publications

2. In context, the underlined portion of sentence 2 (reproduced below) could best be revised in which of the following ways?



6. SAT Worksheet: Paragraph Improvement Practice

As a result, it can be tempting to apply to colleges with “big names” or famous alumni or ones that they have heard are “good” from friends or the media.

- (A) As a result, it can be tempting to apply to colleges with “big names” or famous alumni. Students might also look at ones that they have heard are “good” from friends or the media.
- (B) As a result, students may be tempted to apply to colleges with “big names” or famous alumni or ones that they have heard are “good” from friends or the media.
- (C) As a result, it can be tempting to apply to colleges with “big names” or famous alumni or ones that they have heard are “good”.
- (D) As a result, it can be tempting to apply to colleges with “big names”, famous alumni, or “good” reputations according to friends or the media.
- (E) As a result, it can be tempting to apply to colleges with “big names”, famous alumni, or ones that they have heard are “good” from friends or the media.
3. Of the following, which is the best way to revise sentence 11 (reproduced below)?

While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match these interests, some schools are “liberal arts” whereas others are more focused in research or another topic, such as engineering or business.

- (A) While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match these interests, some schools are “liberal arts” whereas others are more focused in research or another topic, such as engineering or business.
- (B) While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match their interests. Some schools are “liberal arts” whereas others are more focused in research or another topic, such as engineering or business.
- (C) While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match these interests; some schools are “liberal arts” whereas others are more focused in research or another topic, such as engineering or business.
- (D) While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match their interests. For example, some schools are “liberal arts” whereas others are more focused in engineering, business, or research.



- (E) While a high school student may not know exactly what they want to major in during college, answering these questions can help student to find schools that match these interests. There are “liberal arts” whereas others are more focused in research or another topic, such as engineering or business.
4. Which of the following sentences, if inserted before sentence 19, would best improve the third paragraph?
- (A) Parents and students should also discuss if they will pay for college out-of-pocket or with merit-based scholarships, financial aid loans, or grants.
- (B) For example, modern facilities and interesting architecture can help students to imagine themselves as a student on the campus.
- (C) These can be particularly important if the student plans to live on campus.
- (D) Who would have imagined that there are so many factors to consider when choosing a college?
- (E) For many students, college is the first time that students will have lived away from their parents for an extended period of time.
5. Which of the following would make the most logical final sentence for the essay?
- (A) It is important to choose a college or college program that is aligned with a students personal academic and social goals.
- (B) Choosing a college that families can afford helps students to succeed in school.
- (C) Many students are satisfied with their college choice, although some do transfer after their first or second year.
- (D) Some high school students may decide to attend trade school or take a gap year before attending college.
- (E) Academic and non-academic factors can affect the college’s reputation.

Note: After you have completed the paragraph improvement section, correct your answers. Then, for each answer you got incorrect, write the correct answer and why the correct answer is correct. Also, attempt understand why the incorrect answer you chose is wrong and write this down as well.



13

Six Strategies for a Perfect Six Essay and Practice



1. SAT Worksheet: Warm-Up

1 SAT Worksheet: Warm-Up

Directions: Complete the following paragraph improvement problem set.

Questions 1-3 refer to the following passage.

1 “Wise men talk because they have something to say; fools, because they have to say something.” -Plato

2 Plato’s quote above hung on the wall in my high school psychology teacher’s room. **2** Every Friday when he hosts philosophy club, I would look at that sign and before I raised my hand to give an opinion on that week’s topic, I would decide if the comment was worth sharing. **3** I would ask myself honestly if it was the comment of a sage or a nincompoop; this was the first time that I was challenged to pick out what I really wanted to share and what was a superficial, fleeting thought. **4** But in sorting these comments, I started to define what was really important to me, what ideas I would share and defend.

5 The thing that always baffled me about music in general, but particularly prevalent in jazz music, is how people improvise. **6** In all seriousness, my goal for this jazz class was to learn how people go up onstage and “just play”, hoping that the topic of how to improvise could be written in some elegant formula with the designated qualities. **7** But what I learned from this class is improvising is the part of the music, the part of the dialogue, where the soloist has the freedom to express themselves in the moment. **8** In doing so, they are able to share what Plato might call their wisdom, with the audience.

1. Which of the following would be an appropriate title for the passage?

- (A) How Jazz Musicians Learn to Improvise
- (B) Thoughts on Effective Discourse
- (C) Recollections from Philosophy Club
- (D) The Effects of Plato on Today’s Society
- (E) How Jazz Music Affects Its Audience

2. Which of the following revisions is most needed in sentence 2 (reproduced below)?

Every Friday when he hosts philosophy club, I would look at that sign and before I raised my hand to give an opinion on that week’s topic, I would decide if the comment was worth sharing.

- (A) Insert “Seemingly” at the beginning
- (B) Delete “if the comment was worth sharing” at the end of the sentence
- (C) Replace the pronoun “he” with its antecedent
- (D) Change “hosts” to “hosted”
- (E) Insert a phrase describing the sign



3. Paragraph two might by improved by the addition of
- (A) a transition between paragraphs one and two at the beginning of the paragraph
 - (B) a quote from a jazz musician about how he learned to improvise after sentence 6
 - (C) a discussion of other topics that the author learned in the jazz class
 - (D) an example of a jazz musician that was greatly interested in philosophy
 - (E) the author's thoughts about whether or not Plato would approve of jazz music at the end of the paragraph



2. Strategy #1: Know the Right Structure

2 Strategy #1: Know the Right Structure

Directions: Fill in the correct structure of a top-scoring essay as you discuss the information in class.

1. Paragraph 1: _____

- 1-2 sentences of _____
- 1 sentence of _____
- 1 sentence for the _____

2. Paragraph 2: _____

- The first sentence _____
- 1 sentence to _____
- 2-3 sentences of analysis a.k.a. _____

3. Paragraph 3: _____

- Transition to the next paragraph by _____
- 1 sentence to _____
- 2-3 sentences of _____

4. Paragraph 4: _____

- _____ to the next paragraph
- 1 sentence to _____
- 2-3 sentences of _____

5. Paragraph 5: _____

- _____ to the next paragraph and _____
- 1 sentence to _____
- 2-3 sentences of _____



3 Strategy #2: Present a Clear Thesis

What are the elements of a clear thesis?

- _____
- _____
- _____

3.1 SAT Worksheet: Practice Writing Thesis Statements

Directions: Read the following essay prompts and write a clear thesis statement for an essay.

1. “*Happiness can only exist in acceptance.*” -George Orwell

Assignment: Is it better to accept and be happy with what you have, or to always seek greater sources of happiness? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

- Thesis taking one point of view on this issue: _____

- Thesis taking a different viewpoint: _____

2. “*None are more hopelessly enslaved than those who falsely believe they are free.*” -Johann Wolfgang von Goethe

Assignment: In extolling the virtues of our freedom in schools, do we solidify freedom as a value to be protected, so do we teach children to be complacent about freedoms lost? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

- Thesis taking one point of view on this issue: _____



3. Strategy #2: Present a Clear Thesis

- Thesis taking a different viewpoint: _____

3. “*Beware the barrenness of a busy life.*” -Socrates.

“*A man who dares to waste one hour of time has not discovered the value of life.*” -Charles Darwin

Assignment: To get the most out of your short time on earth, is it better to fill your days new and exciting experiences, or to slow down and appreciate the present before it passes? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

- Thesis taking one point of view on this issue: _____

- Thesis taking a different viewpoint: _____



4 Strategy #3: Use 1 Specific Example in Each Body Paragraph

The SAT wants you to use examples from your reading, studies, experience, or observations. The SATs want students to focus on one example per body paragraph. It should be introduced in _____ the and explained in a general sense in _____. The rest of the paragraph should focus on explaining how this example supports your thesis.

Directions: Fill in the following examples below. Note, these should be appropriate to write about on an SAT essay:

- Examples of readings you've done: _____

- Examples of topics you've studied: _____

- Examples of experiences you've had: _____

- Examples of observations you've made: _____

4.1 SAT Worksheet: Practice Writing Specific Examples

Directions: For each of the two essay prompts from the above worksheet, pick one of the theses that you wrote to prepare examples for.

1. **Assignment:** Is it better to accept and be happy with what you have, or to always seek greater sources of happiness? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

- Which thesis did you select? _____
- **Example 1:** Describe your example. _____



4. Strategy #3: Use 1 Specific Example in Each Body Paragraph

- Describe how your example supports your thesis. _____

- **Example 2:** Describe your example. _____

- Describe how your example supports your thesis. _____

- **Example 3:** Describe your example. _____

- Describe how your example supports your thesis. _____

2. **Assignment:** In extolling the virtues of our freedom in schools, do we solidify freedom as a value to be protected, so do we teach children to be complacent about freedoms lost? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

- Which thesis did you select? _____
- **Example 1:** Describe your example. _____

- Describe how your example supports your thesis. _____

- **Example 2:** Describe your example. _____

- Describe how your example supports your thesis. _____

- **Example 3:** Describe your example. _____

- Describe how your example supports your thesis. _____



5 Strategy #4: Write a Clear, Two-Part Conclusion

Conclusions consist of two parts, **re-stating the thesis and extending the argument**. The extension is where you can demonstrate why your argument is important in a wider context than just your essay and consider the implications of the argument. For example, this can be suggestions of reasons or situations where people should consider your argument thoughtfully.

Samples of language for the extension in the conclusion may include:

- Based on this argument, society should consider ...
- This argument suggests that when ... occurs ...
- Without considering this perspective, it is possible that ...

5.1 SAT Worksheet: Practice Writing Conclusions

Directions: For the theses and examples that you wrote in each of the two essay prompts in the above worksheet, write a conclusion for each thesis and set of examples.

1. **Assignment:** Is it better to accept and be happy with what you have, or to always seek greater sources of happiness? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.
2. **Assignment:** In extolling the virtues of our freedom in schools, do we solidify freedom as a value to be protected, so do we teach children to be complacent about freedoms lost? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.



6 Strategy #5: Use Transitions Between Paragraphs

Transitions are important because they allow for more flow within and between paragraphs.

1. Examples of transitions to be used between the introduction and first body paragraph:

2. Examples of transitions to be used between body paragraphs:

3. Examples of transitions to be used between the last body paragraph and the conclusion:

4. Examples of transitions to be used between sentences to show similarity:

5. Examples of transitions to be used between sentences to show contrast:

6. Examples of transitions to be used between sentences to show cause and effect:



7 Use Formal Language and Proper Grammar

Even though you only have 25 minutes to write the SAT essay, you should still do your best to use formal language and proper grammar.

Informal words that should not be used on the SAT include:

1. thing
2. like
3. stuff
4. a lot
5. excessive cliches

Grammar errors frequently seen on SAT essays include:

1. incorrect or inconsistent verb tense
2. using the pronoun "we" without defining the antecedent
3. using fragments instead of real sentences

7.1 SAT Worksheet: Correct the following sentences so that they each use formal language and are free of grammatical mistakes

Correct the following sentences so that they each use formal language and are free of grammatical mistakes.

1. We were thinking that we would bring a lot of stuff to the picnic, but we ended up only having a few things.

Errors: _____

Fix It: _____

-
2. Although she is at school in 1931, it is clear from the context that she was unhappy.

Errors: _____

Fix It: _____



7. Use Formal Language and Proper Grammar

3. This argument is important, as it suggests to us that we should always do our best on any assignment and conduct ourselves with integrity.

Errors: _____

Fix It: _____

4. It was clear that he was trying to kill two birds with one stone.

Errors: _____

Fix It: _____

5. Paul wasn't sure what he was going to see when he rolled up to the party.

Errors: _____

Fix It: _____



8 SAT Essay Practice

Directions: Think carefully about the issue presented in the following excerpt and the assignment below. You will have 25 minutes to craft an essay response to the prompt.

Prompt 1: “*No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable.*” -Adam Smith

Assignment: Should we judge our society based on the opportunities it provides its members, or on the conditions of those who achieve the least? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

8. SAT Essay Practice

Chapter 13: Six Strategies for a Perfect Six Essay and Practice

Prompt 2: *"I am not afraid of an army of lions led by a sheep. I am afraid of an army of sheep led by a lion."* -Alexander the Great

Assignment: What is more important to the effectiveness of a group, the qualities of its leaders or the characteristics of its members? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

8. SAT Essay Practice

14

Strategy #1 For Sentence Completions and Passage-Based Reading Questions: Building Vocabulary



1 SAT Worksheet: Warm-Up

Directions: Brainstorm and begin writing a response to the following SAT Essay prompt.

“Beware the barrenness of a busy life.” - Socrates.

“A man who dares to waste one hour of time has not discovered the value of life.”
- Charles Darwin

Assignment: To get the most out of your short time on earth, is it better to fill your days new and exciting experiences, or to slow down and appreciate the present before it passes? Support your position with reasoning and examples taken from your reading, studies, experience, or observations.



2 SAT Vocabulary

It's true that you can't learn every single word on the SAT. However, there are certain words (or groups of words) that you should know and other words that you can use strategies, such as using roots or connotations, to figure out.



3. Words to Know

3 Words to Know

Frequently-tested SAT vocabulary is found at the end of this book and should be studied over time.

What are some ways that you can study a list of vocabulary words?

-
-
-
-
-
-



4 Groups of Words

Vocabulary words can be grouped based on definition. For example, the words “reticent” and “taciturn” both mean reserved. It can be easier to learn these groups rather than individual words.

5 SATWorksheet: Practice with Grouping Vocabulary Words

Directions: Use a thesaurus to find sophisticated vocabulary words with the meanings given below. The words that are already filled out for you are words that frequently appear on the SATs.

1. Words that mean “reserved”

- reticent
- taciturn
-
-
-

2. Words that mean “careful” or “critical”

- discriminating
-
-
-
-

3. Words that mean “puzzling” or “mysterious”

- enigmatic
-
-
-
-

4. Words that mean “bitter” or “sharp”

- caustic
-
-
-
-

5. Words that mean “highly productive”



Chapter 14: Strategy #1 For Sentence Completions and Passage-Based Reading Questions: Building Vocabulary

- prolific
-
-
-
-

6. Words that mean “generous” or “noble”

- magnanimous
-
-
-
-

7. Words that mean “peaceful” or “committed to peace”

-
-
-
-
-

8. Create your own: Words that mean “_____”

-
-
-
-
-



6 Prefixes, Suffixes, and Roots to Know

Knowing prefixes, suffixes, and roots can help you to figure out unfamiliar words in the sentence completion answer choices or in passages on the SAT Verbal passages. For example, “cred-” means “to believe”, so something that is “credible” is able to be believed. In some cases, you may be able to combine two or more of these to get the definition.

7 SAT Worksheet: Practice Determining SAT Words using Prefixes, Suffixes, and Roots

Directions: Below is a list of roots and their definitions. Answer the question about the word that follows.

1. Acer-, acid-, acri- means sharp. Based on this definition, if someone described a drink to you as “acrid”, would you drink it? Why or why not? _____
2. Ag-, agi-, ig-, act- means do, move, or go. What will someone who is a poor navigator have trouble with? _____
3. Arch means chief, first, rule means. Do you think that American society is patriarchal or matriarchal? _____
4. Belli- means war. In what situation might someone be belligerent? _____
5. Carp-, cip-, cept means to take. How might this help you to figure out the definition of the word “inception”? _____
6. Cred- means to _____. Name some credible news sources. _____
7. Dict- means to say or speak. What do you think that the word “benediction” means? (Hint: do you think that the prefix “bene-” refers to something good or something bad?) _____
8. Duc-, duct- means to lead or to pull. If someone abducts someone else, what did they do? _____
9. Fac-, fact-, fic-, fect- means to do or make. What is currently not feasible without modern technology? _____
10. Fall-, fals- means to deceive. If someone is described as fallacious, would you want to be friends with them? _____
11. Fid-, fide-, feder- means faith or trust. If someone confides in you, what do they do? _____
12. Grad-, gress- means to bring together, to step or to go. How do you measure progress in your SAT class? _____
13. Greg- means herd. Where might a congregation of people meet? _____
14. Homo- means same whereas hetero- means different. What do you think that the word “homophone” means? _____ (Hint: What do you think “phon-” means? _____)
15. Jac-, Ject- means insert. What is the goal of a projectile weapon? _____
16. Loqu-, locut- means to talk or to speak. Who is the most loquacious person in your class? _____



7. SAT Worksheet: Practice Determining SAT Words using Prefixes, Suffixes, and Roots

17. Magn- means great. Name a magnate in the technology industry. _____
18. Migra- means wander. How might you identify if a bird is migratory over a long period of time? _____
19. Neo- means new. Who do you know who has given birth to a neonate? _____
20. Oligo- means few or little. Do you think America is a democracy or an oligarchy? Why? _____
21. Pel-, puls- means drive or urge. What is a food that repulses you? _____
22. Pon-, pos-, pound- means place or put. What do you think that postulate means? _____
23. Reg- or recti- means straighten. What is another word to describe someone that is “regimented”? _____
24. Sacr-, sanc-, secr- means sacred. What do you think that the word sacrosanct means? _____
25. Sec-, sect- means to cut. How might you section a pizza? _____
26. Sed-, sess-, sid means sit. What do you think that subsidiary means? _____



8 Connotations

Connotations, the emotion attached to a word, can also be helpful in figuring out what type of word that you want to fill in the blank if you are having a hard time figuring out the definition of the word. Words can have negative, positive, or neutral connotations. For example, the word quack has a negative connotation, whereas the word doctor has a positive connotation.

But how can you use this on the SATs? If you know that the blank has a negative connotation, that means that you are looking for an _____ answer choice with a connotation and can eliminate all of the words that have a _____ connotation.

9 SAT Worksheet: Determine the connotation of unfamiliar words

Directions: Write whether each of the following words are positive, negative, or neutral.

- accusation _____
- accost _____
- acetic _____
- acme _____
- analogous _____
- baleful _____
- conflagration _____
- dissonance _____
- enmity _____
- fastidious _____
- genteel _____
- hybrid _____
- ignoble _____
- jocose _____
- litigious _____
- mollify _____
- noisome _____
- obstinate _____
- permissible _____
- quiescence _____
- regress _____
- somber _____
- travail _____



Chapter 14: Strategy #1 For Sentence Completions and Passage-Based Reading Questions: Building Vocabulary

- underrate _____
- valorous _____
- whimsical _____
- zenith _____



10 SAT Worksheet: Practice with Unfamiliar Words

Directions: Write your best guess for the definitions of each of the following words or where you might have heard it before. If you are unsure or can not make a guess, then write what you think the connotation of the word is.

1. (A) billowing _____
(B) labyrinth _____
(C) credible _____
(D) abrogate _____
(E) tangible _____

2. (A) reprehensible _____
(B) penguin _____
(C) fabricated _____
(D) rancorous _____
(E) enigmatic _____

3. (A) consecrations _____
(B) enigmas _____
(C) fabrications _____
(D) accolades _____
(E) amalgamations _____

4. (A) acquiesced _____
(B) mimicked _____
(C) consecrated _____
(D) curtailed _____
(E) plummeted _____

11 SAT Worksheet: Sentence Completion Strategies Practice

Directions: Read the following sentence completion questions and write your own word for what you think should go in the blank as well as the connotation of the word that should go in the particular blank.

1. Johns story about the alien abduction was not seen as by _____ his friends; everyone thought he was lying.
2. The _____ act was denounced by everyone who heard about it.
3. Emma received _____ for her heroic act.
4. Rebecca _____ to her bosss demands, as it was easier to comply than to argue.
5. As a result of his disdain for the political climate, Rich decided to _____ from voting in the presidential election.
6. The _____ gasses forced the building to be evacuated.
7. Do not _____ the your meaning with a _____ of fancy words. Rather, speak clearly and simply.
8. The _____ child believed even the most absurd _____.
9. The _____ proposal would not be adopted until is could be shown to not have _____ side effects.

12 SAT Worksheet: Practice with 1-Blank Sentence Completion Questions

Directions: Combine your knowledge from this lesson to complete the sentence completions below. After you finish the question, briefly describe the strategies and processes that you used to complete the problem.

1. Johns story about the alien abduction was not seen as by _____ his friends; everyone thought he was lying.
 - (A) billowing
 - (B) labyrinth
 - (C) credible
 - (D) abrogate
 - (E) tangible

Strategies used: _____ **How I solved the problem:** _____

2. The _____ act was denounced by everyone who heard about it.
 - (A) reprehensible
 - (B) penguin
 - (C) fabricated
 - (D) rancorous
 - (E) enigmatic

Strategies used: _____

How I solved the problem: _____

3. Emma received _____ for her heroic act.
 - (A) consecrations
 - (B) enigmas
 - (C) fabrications
 - (D) accolades



(E) amalgamations

Strategies used: _____

How I solved the problem: _____

4. Rebecca _____ to her boss's demands, as it was easier to comply than to argue.

- (A) acquiesced
- (B) mimicked
- (C) consecrated
- (D) curtailed
- (E) plummeted

Strategies used: _____

How I solved the problem: _____

5. As a result of his disdain for the political climate, Rich decided to _____ from voting in the presidential election.

- (A) recite
- (B) obfuscate
- (C) abstain
- (D) destroy
- (E) initiate

Strategies used: _____

How I solved the problem: _____

6. The _____ gasses forced the building to be evacuated.

- (A) noxious
- (B) rancorous
- (C) vicarious



12. SAT Worksheet: Practice with 1-Blank Sentence Completion Questions

- (D) enigmatic
- (E) indiscriminate

Strategies used: _____

How I solved the problem: _____

12.1 SAT Worksheet: Practice with 2-Blank Sentence Completion Questions

Strategy for 2-Blank Sentence Completions When you see a sentence completion question with two blank spaces, you will be asked to identify the combination of words in the answer choice that is appropriate for both blanks. While this usually looks more intimidating than the 1-blank questions, they are frequently easier than the 1-blank questions because incorrect answer choices are easier to eliminate.

If you are looking through the answer choices but the other doesn't, then this is **not** the correct answer choice and you should **cross out the entire answer choice**. In this manner, you can often eliminate incorrect answer choices by eliminating the first word or the second word. If you don't know what the first word in the answer choice, see if the second word makes sense or vice versa.

Directions: Complete the following example as a class. Cross out the answer choices in which one or both of the words do not make sense in the sentence.

Do not _____ the your meaning with a _____ of fancy words. Rather, speak clearly and simply.

- (A) intimidate . . . debacle
- (B) synthesize . . . colossus
- (C) temper . . . harangue
- (D) obfuscate . . . plethora
- (E) abrogate . . . laceration

How I solved the problem: _____

Directions: Complete the following 2-blank sentence completions individually or with a partner. Cross out the answer choices in which one or both of the words do not make sense in the sentence.

1. The _____ child believed even the most absurd _____.



- (A) persnickety . . . perfidy
- (B) virulent . . . quandary
- (C) complacent . . . quarry
- (D) credulous . . . drivel
- (E) tawdry . . . tedium

How I solved the problem: _____

2. The _____ proposal would not be adopted until it could be shown to not have _____ side effects.

- (A) tentative . . . detrimental
- (B) assiduous . . . undetermined
- (C) palliative . . . unctuous
- (D) caucus . . . analgesic
- (E) sanguine . . . inadvertent

How I solved the problem: _____

13 Vocabulary-in-Context Practice for Reading Comprehension

In addition to sentence completion questions, the reading comprehension sections on the SATs also have passage-based reading questions. Understanding vocabulary in context can help with these passage-based reading sections for several reasons.

- 1. It will help you understand the passages better-** Besides Sentence Completions, the Critical Reading section of the SATs is composed of passage-based reading questions. The passages can range from about 100 to 850 words. They are drawn from a wide range of sources, including natural sciences, literary fiction, and social studies. Critical Reading questions test your understanding of the written word and your ability to read carefully and analytically. They also test your vocabulary. Some questions are based on a single passage, while other questions ask you to compare and contrast two related questions, usually based around the same topic or theme.
- 2. It will help you to solve passage-based reading questions more accurately**

The types of reading questions are as follows:

- Main idea/primary purpose/title
- Details
- Style
- Vocabulary in context
- Inferences/drawing conclusions
- Tone

In this lesson, we will focus on Vocabulary in context questions.

- 3. Discern complex answer choices-** Answer choices will sometimes contain difficult vocabulary words or complex structures



13.1 SAT Worksheet: Vocabulary-in-Context Practice for Reading Comprehension

*Use the strategies practiced above to determine the definition of the bolded word. Show your work on the line underneath the passage. Remember to look at the sentence in context of the passage and define the word **in the context of the passage** as this will often utilize a word's secondary definition.*

1. The following is a passage from “The Story of the Crusades” by E. M. Wilmot Buxton.

While Southern Europe was thus being stirred to enthusiasm by being brought into personal contact with one who had seen for himself the woes of the Holy Land, Pope Urban had already called a council to consider the matter in a practical form. At this Council of Placentia, however, the chief part of the attention of those present was drawn to the representations of the Greek Emperor, on whose behalf ambassadors pleaded the cause of the city of Constantinople. If that city fell before the threatened **onslaught** of the Turks, they said, Christianity must perish for ever in the East, and nothing but a narrow stretch of sea kept the Moslems from the gates of the capital city of the Eastern Empire.

At these words the deepest sympathy was expressed, but it was suggested that the best way of succouring the threatened city was to draw off the attention of the Turks by an attack upon Palestine itself. This was just what Urban desired. A definite march upon Jerusalem would **fire** the imaginations of men of all ranks far more than an attempt to defend Constantinople before it was actually besieged. The old jealousy between the Eastern and Western Empire had to be reckoned with; and the Emperor Alexios was no heroic figure to stand for the Cause of Christ. The whole question, was, therefore, deferred until the autumn of 1095, when a Council was summoned at Clermont in France.

That dull November day witnessed a most striking scene. The vast open square in front of the Cathedral was crammed with people of all classes drawn from all quarters by the rumour that the subject of a Cru-



13. Vocabulary-in-Context Practice for Reading Comprehension

25

sade would be discussed. From the great western door, immediately after High Mass, emerged the figure of the Pope, and a number of bishops and cardinals, dressed in vestments glowing with colour, followed him upon the high **scaffold** covered with red cloth.

Definition of “onslaught”: _____ Context clues: _____

Definition of “fire”: _____

Definition of “scaffold”: _____

From <http://www.gutenberg.org/ebooks/47780>.

2. The following scene takes place at a private school.

The door of Mrs. Boyds room stood partly open. Louie Howe gave a light tap and marched in with an air that was rather **insolent**.

30

“Oh, Mrs. Boyd, Ive given my walking dress such an awful tear! Mrs. Barrington said she was quite sure you could mend it. You see Im going to a sort of musicale in about an hour and I couldnt take it to the tailors. Its my best suit, too, andit must be done very neatly.”

35

Mrs. Boyd examined it. “Yes, its pretty bad, Ive done worse though, and part of it will be under the plait. Let me see if I have the right color.”

She opened a box of spools and took up several colors to match.

“Oh, yes, here is one,” and she gave a smile of gratification.

Louie dropped into a chair. Was she going to wait? Lilian wondered.

40

“What a pleasant room this is, Mrs. Boyd! But all the rooms are just cozy and nice. Of course Mrs. Barrington can afford to keep it in a lovely fashion for her prices are high and she doesnt care to take any scholars only from the best families. I do wonder how that Nevins girl slipped in? Her father is a first-class banker, I have understood. They have a big house in New York and a summer house at Elberon, and their New York house is rented out for seven thousand dollars; but isnt she a terror? How do you stand her, Miss Boyd?”

45



“She has had very little training. Her mother has been ill and seems very **indulgent**,” answered Lilian quietly. “Yet she may make a very fair scholar.”

50 “Its funny to hear her talk. Bragging, we call it. Do you suppose the stories are true?”

“Mrs. Barrington would know,” was the cautious reply.

55 “Well, I suppose she must be satisfactory or she wouldnt be here. But theres common blood back of her somewhere. Money doesnt give you the prestige of good birth. That always showsdont you think so?” with a confident upward glance.

“I have not had experience enough with the world to judge,” answered Lilian. “We lived in a factory town . . .”

Definition of “insolvent”: _____

Definition of “indulgent”: _____

From: The Girls at Mount Morris, by Amanda Minnie Douglas. From
<https://www.gutenberg.org/files/24070/24070-h/24070-h.htm>.

**Strategy #2 For Sentence Completions and Passage-Based
Reading Questions: Determining Key Words**

1. SAT Worksheet: Warm-Up

1 SAT Worksheet: Warm-Up

Use strategies learned last week to attempt to guess at the connotation and definition of the following SAT words:

1. anachronistic

2. deleterious

3. fortuitous

4. opulent

5. ostentatious

6. prosaic

7. querulous

8. rancorous

9. surreptitious



2 Determining Key Words In Sentence Completions

There are 4 types of sentence completion problems: definitional, contrast, cause and effect, and synonyms. Each type of sentence completion has its own key words. Here, we will introduce each type of sentence completion and also where the key words tend to be located.

1. Definitional:

Types of Key Words:

Examples of Key Words:

2. Contrast:

Types of Key Words:

Examples of Key Words:

3. Cause and Effect:

Types of Key Words:

Examples of Key Words:

4. Synonyms:

Types of Key Words:

Examples of Key Words:

2. Determining Key Words In Sentence Completions

2.1 SAT Worksheet: Practice with Key Words in Sentence Completions

Directions: For each sentence completion problem, label its type (definitional, etc.) and box the 1-2 key words in each sentence. Then, answer the questions using strategies presented in this and the previous chapter.

Basic

1. Many parishioners appreciate short sermons rather than _____ ones where the minister speaks for a long time.

- (A) verbose
- (B) predominate
- (C) ardent
- (D) sparse
- (E) fatuous

Type of Sentence:_____

2. While it is ideal to optimize the design of a product, many engineers are also told that they must be _____ and consider factors such as cost, time to build, and building code restrictions.

- (A) troublesome
- (B) competent
- (C) deceitful
- (D) pragmatic
- (E) inexplicable

Type of Sentence:_____

3. Many students received low grades on their assignments because the professor was _____ in her instructions and therefore students were not sure how to complete the assignment.



- (A) invariable
- (B) redundant
- (C) vague
- (D) odious
- (E) acrid

Type of Sentence:_____

4. It is believed that new company policies will have _____ effects on efficiency, rather than boost productivity, as they were _____ to do.

- (A) helpful . . . proposed
- (B) negligible . . . tolerated
- (C) adverse . . . intended
- (D) antagonistic . . . deluged
- (E) sacrosanct . . . divested

Type of Sentence:_____

5. After Marta was rejected from the competitive summer program, the guidance counselor attempted to _____ her by _____ her that she could apply next year.

- (A) console . . . assuring
- (B) satiate . . . mesmerizing
- (C) prolong . . . emphasizing to
- (D) aggrieve . . . wielding to
- (E) query . . . ousting

Type of Sentence:_____

2. Determining Key Words In Sentence Completions

6. After a long day, he sought _____ by returning to his home and listening to classical music.

- (A) candor
- (B) adventure
- (C) integrity
- (D) persecution
- (E) respite

Type of Sentence:_____

Medium

7. To bring a drug to market, pharmaceutical companies must demonstrate that their product is in fact _____.

- (A) ameliorative
- (B) hazardous
- (C) peccant
- (D) inviolable
- (E) lucid

Type of Sentence:_____

8. Many Americans lament that politicians with _____ views hinder the democratic process and _____ compromise.

- (A) neglectful . . . supplant
- (B) inconsistent . . . transgress
- (C) intractable . . . thwart
- (D) appalling . . . delay
- (E) opaque . . . forfeit

Type of Sentence:_____



9. David is a successful lawyer, but he also considers himself a _____ in music, playing with the local orchestra once a week.

- (A) dilettante
- (B) palinode
- (C) effrontery
- (D) vigilante
- (E) lea

Type of Sentence:_____

10. The psychology journal article was initially greeted with _____ but as more research was done in the field, it was slowly _____ into more mainstream doctrine.

- (A) enthusiasm . . . reputed
- (B) criticism . . . hidden
- (C) outcry . . . visualized
- (D) buffoonery . . . placed
- (E) skepticism . . . incorporated

Type of Sentence:_____

11. Although it was widely accepted that a new school was needed, taxpayers _____ when they learned that their taxes would increase to pay for the school.

- (A) horded
- (B) baulked
- (C) nestled
- (D) arbitrated
- (E) venerated



2. Determining Key Words In Sentence Completions

Type of Sentence:_____

12. The statistical _____ was able to predict the results of the election with more accuracy than most political experts.

- (A) zephyr
- (B) carrion
- (C) pundit
- (D) mallet
- (E) elegy

Type of Sentence:_____

13. The advocacy group had _____ a great amount of literature supporting their cause that others found it _____ to oppose them.

- (A) embroiled . . . unifying
- (B) amassed . . . intimidating
- (C) journalize . . . substantive
- (D) accumulated . . . disagreeable
- (E) prohibited . . . neglectful

Type of Sentence:_____

14. A _____ personality, John was unanimously appointed the class clown.

- (A) surmountable
- (B) disparaging
- (C) flimsy
- (D) myriad
- (E) jocular



Type of Sentence:_____

15. The criminal's friend _____ the accused's story that he was at home at the time of the crime, providing a strong alibi.

- (A) corroborated
- (B) squabbled
- (C) marveled at
- (D) implored
- (E) opposed

Type of Sentence:_____

Advanced

16. Jackson Case demonstrated incredible _____ when he contributed five million dollars during the foundation's annual event to benefit wounded military personnel.

- (A) diffidence
- (B) gratification
- (C) temerity
- (D) magnanimity
- (E) annuity

Type of Sentence:_____

17. A _____ editor can discern high quality editor from poor or even mediocre drafts.

- (A) prosaic
- (B) maudlin
- (C) credulous
- (D) discriminating



2. Determining Key Words In Sentence Completions

(E) wry

Type of Sentence:_____

18. When speaking among themselves, doctors often rely on _____ language, as a result, some face difficulties when they must explain a condition in a more _____ way to patients.

- (A) obscure . . . successful
- (B) blasé . . . relatable
- (C) esoteric . . . accessible
- (D) desolate . . . lethargic
- (E) shorthand . . . forcible

Type of Sentence:_____

19. The economists were able to _____ their claim with a _____ of evidence.

- (A) prove . . . comprehensible
- (B) support . . . scarcity
- (C) reinforce . . . disparity
- (D) oppose . . . vindication
- (E) substantiate . . . dearth

Type of Sentence:_____

20. The prodigal son demonstrated _____ with his inheritance and so he returned to his father's abode with nothing.

- (A) improvidence
- (B) paucity
- (C) austerity



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- (D) depreciation
- (E) regress

Type of Sentence:_____

21. Bob devoted himself to a life of _____, whereas his twin was much more parsimonious.

- (A) verbiage
- (B) folly
- (C) coercion
- (D) altruism
- (E) truculence

Type of Sentence:_____

3 Determining Key Phrases in the Passage

Some of the most difficult parts of the passage-based reading section is figuring out which words or sentences are important for understanding the passage and answering the passage-based reading questions correctly.

When you are reading a passage for the passage-based reading section, you should focus on identifying the main idea and important details rather than precisely what every single word in every single line of the passage means. This strategy works for the following reasons:

- 1. Time Limits-** You have a very limited amount of time to read a lot of text and answer questions. It is difficult to understand every word or even every sentence of a text perfectly in the short time that the SATs gives you to read the passages.
- 2. Active Reading Promotes Understanding-** Finding the main idea in each paragraph as well as for the entire passage helps you to engage with the passage.
- 3. Answering Questions Accurately-** Understanding the passage as a whole will help you to answer the general questions in the passage-based reading (e.g. questions about the main idea of the passage) as well as eliminate incorrect answers from the questions that are more detail-oriented.

Let's remind ourselves about important strategies for passage-based readings:

- 4. You can (and should) refer back to the passage for detail questions-** When you are given a question about a specific detail from the passage, you will have to go back into the passage and read it again regardless of whether you understood it the first time or not.

Because of the usefulness of identifying the main idea, we will practice quickly reading and identifying the a) one main point in each paragraph and b) the main idea of the passage. You should use this procedure for the long passages on the SAT. For the shorter passages on the SAT, you will just do part a). This is also

a good habit to get into when reading paired passages, which we will discuss in the next chapter.

3.1 SAT Worksheet: Practice Identifying Main Ideas and Important Points

Directions: For each passage, underline the main point in each paragraph. After you have finished the passage, write the main idea of the passage.

1. What is Society?—Perhaps the great question which sociology seeks to answer is this question which we have put at the beginning. Just as biology seeks to answer the question “What is life?”; zoology, “What is an animal?”; botany, “What is a plant?”; so sociology seeks to answer the question “What is society?” or perhaps better, “What is association?” Just as biology, zoology, and botany cannot answer their questions until those sciences have reached their full and complete development, so also sociology cannot answer the question “What is society?” until it reaches its final development. Nevertheless, some conception or definition of society is necessary for the beginner, for in the scientific discussion of social problems we must know first of all what we are talking about. We must understand in a general way what society is, what sociology is, what the relations are between sociology and other sciences, before we can study the social problems of to-day from a sociological point of view.

What is the main idea of this paragraph?: _____

The word “society” is used scientifically to designate the reciprocal relations between individuals. More exactly, and using the term in a concrete sense, a society is any group of individuals who have more or less conscious relations to each other. We say conscious relations because it is not necessary that these relations be specialized into industrial, political, or ecclesiastical relations. Society is constituted by the mental interaction of individuals and exists wherever two or three individuals have reciprocal conscious relations to each other. Dependence upon a common economic environment, or the mere contiguity in space is not sufficient to constitute a



3. Determining Key Phrases in the Passage

85 society. It is the interdependence in function on the mental side, the contact and overlapping of our inner selves, which makes possible that form of collective life which we call society. Plants and lowly types of organisms do not constitute true societies, unless it can be shown that they have some degree of mentality. On the other hand, there is no reason for withholding the term "society" from many animal groups. These animal societies, however, are very different in many respects from human society, and are of interest to us only as certain of their forms throw light upon human society.

90 **What is the main idea of this paragraph?:** _____

95 We may dismiss with a word certain faulty conceptions of society. In some of the older sociological writings the word society is often used as nearly synonymous with the word nation. Now, a nation is a body of people politically organized into an independent government, and it is manifest that it is only one of many forms of human society. Another conception of society, which some have advocated, is that it is synonymous with the cultural group. That is, a society is any group of people that have a common civilization, or that are bearers of a certain type of culture. In this case Christendom, for example, would constitute a single society. Cultural groups no doubt are, again, one of the forms of human society, but only one among many. Both the cultural group and the nation are very imposing forms of society and hence have attracted the attention of social thinkers very often in the past to the neglect of the more humble forms. But it is evident that all forms of association are of equal interest to the sociologist, though, of course, this is not saying that all forms are of equal practical importance.

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What is the main idea of this paragraph?: _____

110 Any form of association, or social group, which may be studied, if studied from the point of view of origin and development, whether it be a family, a neighborhood group, a city, a state, a trade union, or a party, will serve to reveal many of the problems of sociology. The natural or genetic social groups, however, such as the family, the community, and the nation,

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serve best to exhibit sociological problems. In this text we shall make particular use of the family, as the simplest and, in many ways, the most typical of all the forms of human association, to illustrate concretely the laws and principles of social development. Through the study of the simple and primary forms of association the problems of sociology can be much better attacked than through the study of society at large, or association in general. From what has been said it may be inferred that society as a scientific term means scarcely more than the abstract term association, and this is correct. Association, indeed, may be regarded as the more scientific term of the two; at any rate it indicates more exactly what the sociologist deals with. A word may be said also as to the meaning of the word social. The sense in which this word will generally be used in this text is that of a collective adjective, referring to all that pertains to or relates to society in any way. The word social, then, is much broader than the words industrial, political, moral, religious, and embraces them all; that is, social phenomena are all phenomena which involve the interaction of two or more individuals. The word social, then, includes the economic, political, moral, religious, etc., and must not be thought of as something set in opposition to, for instance, the industrial or the political.

What is the main idea of this paragraph?: _____

What is the main idea of this entire passage?: _____

What is the tone of the passage? What does the author feel about the issues being discussed in the passage? How do you know?: _____

The passage, SOCIOLOGY AND MODERN SOCIAL PROBLEMS, is adapted from <http://www.gutenberg.org/cache/epub/6568/pg6568.html>.

4 Determining Key Phrases in the Passage-Based Reading Questions

There are six main types of questions asked on the passage-based reading section:

- Main idea/primary purpose/title
- Details
- Style
- Vocabulary in context
- Inferences/drawing conclusions
- Tone

Each of these carry their own set of clue words. Look through a recent practice test you have taken and write down the phrasing used with each of these questions:

- Main idea/primary purpose/title _____
- Details _____
- Style _____
- Vocabulary in context _____
- Inferences/drawing conclusions _____
- Tone _____

The SAT are a standardized test, which means that they have to be able to demonstrate definitively why there is one and only one correct answer among the five answer choices given in a multiple choice problem.



This means that there is always strong line number evidence for the correct answer (phrases from the passage) and many times the correct answer is re-worded from a line in the passage, particularly for main idea and details questions.

What does this mean that you should do after reading a question?

If a line number is given in the question, go back and read a few lines before and a few lines after line(s) the question is referring to.

For example, given the following passage:

The word “society” is used scientifically to designate the reciprocal relations between individuals. More exactly, and using the term in a concrete sense, a society is any group of individuals who have more or less conscious relations to each other. We say conscious relations because it is not necessary that these relations be specialized into industrial, political, or ecclesiastical relations. Society is constituted by the mental interaction of individuals and exists wherever two or three individuals have reciprocal conscious relations to each other. Dependence upon a common economic environment, or the mere contiguity in space is not sufficient to constitute a society. It is the interdependence in function on the mental side, the contact and overlapping of our inner selves, which makes possible that form of collective life which we call society. Plants and lowly types of organisms do not constitute true societies, unless it can be shown that they have some degree of mentality. On the other hand, there is no reason for withholding the term ”society” from many animal groups. These animal societies, however, are very different in many respects from human society, and are of interest to us only as certain of their forms throw light upon human society.

The passage, SOCIOLOGY AND MODERN SOCIAL PROBLEMS, is adapted from <http://www.gutenberg.org/cache/epub/6568/pg6568.html>.

If a question reads, “What does the author mean by blah blah blah (line 4)?” which lines should you go back to the passage and read? _____

Highlight these lines in the passage now.

Why is going back to read this important (rather than trying to answer the question based on what you remember reading in the passage)? _____

5 Determining Why An Author Does X in The Passage

Many questions (details, style, inferences/drawing conclusions, etc.) are variations one the question of why the author chooses something in the passage or writes a certain way. For example, a question might ask why the author mentions a particular detail in a certain part of the passage. We are looking for how this contributes to the message of the passage. Some sample reasons that a line or phrase may be included in the passage are the following:

- provide other details, an example, or a personal anecdote related to a topic presented in the previous sentences
- present the author's own attitude towards the character or topic described (this can also provide clues to tone)
- to reveal something about the character or topic described
- provide a contradiction to the statement made in the previous sentence

For this type of question, it is important to re-read a few lines above and below the line cited in the question, looking for how the line cited contributes to this section and the paragraph as a whole. You should create your own answers.

Look at the following passage and answer the questions that follow.

The word “society” is used scientifically to designate the reciprocal relations between individuals. More exactly, and using the term in a concrete sense, a society is any group of individuals who have more or less conscious relations to each other. We say conscious relations because it is not necessary that these relations be specialized into industrial, political, or ecclesiastical relations. Society is constituted by the mental interaction of individuals and exists wherever two or three individuals have reciprocal conscious relations to each other. Dependence upon a common economic environment, or the mere contiguity in space is not sufficient to constitute a society. It is the interdependence in function on



- 10 the mental side, the contact and overlapping of our inner selves, which makes possible that form of collective life which we call society. Plants and lowly types of organisms do not constitute true societies, unless it can be shown that they have some degree of mentality. On the other hand, there is no reason for withholding the term "society" from many animal groups. These animal societies,
15 however, are very different in many respects from human society, and are of interest to us only as certain of their forms throw light upon human society.

The passage, SOCIOLOGY AND MODERN SOCIAL PROBLEMS, is adapted from <http://www.gutenberg.org/cache/epub/6568/pg6568.html>.

1. Why does the author define "conscious relations"? _____
2. Why does the author say that plants and lowly types of organisms do not constitute true societies? _____
3. What is the tone of the passage? _____
4. How can the narrator's role in this passage best be described? (Biased?
Dispassionate?, etc.) _____

6 SAT Worksheet: Practice with Passage-Based Reading Questions

Directions: For each passage, underline the main point in each paragraph and put an arrow next to the main idea of the passage. Then, answer the questions that follow. **After you are finished answering the question, put the phrase or line number from the passage that served as your evidence for your answer.**

7 Correcting Incorrect Answers

While it can be frustrating to get a question wrong, it can be helpful to see why the answer that you selected was incorrect. Furthermore, understanding why the incorrect answers are incorrect can also alert you to the answer choices that the SAT question writers will use to try get you to select the incorrect answers.

Why Incorrect SAT Answer Choices on the Passage-Based Reading Sections are Wrong

1. Too Broad/Require too much of a leap: Sometimes the passage is about a specific example (like a mammal) and then the answer choice will be _____ (like about animals). The answer choice might feel right or that the statement may be something the author would agree with, but it is usually not the best answer.
2. Too narrow: This type of choice might be in the text, but _____ doesn't completely answer the question. This is common in questions about the _____ of the passage.
3. Too Extreme: The SAT want to test how carefully you can read and a text. Therefore, words like _____, _____, _____, _____, _____, and _____ are probably not good choices.
4. Not Stated in the Passage: The answer choice is not _____ anywhere in the passage or is _____ to the passage. This type of answer choice could make sense, but is not close enough to what is said in the passage.
5. True but unrelated to the Question: This type of answer choice might be _____ and _____ but it doesn't _____ the question.



8 Correcting Incorrect Answers

Directions: correct your incorrect answers from the previous SAT Worksheet.

Label why your answer was incorrect (using one of the five classifications above). Then, write what you think the correct answer is and why, citing line number evidence from the text.

Section and Question #	Reason why the answer I originally selected is wrong	Evidence for the correct answer (line # and phrase)	New Answer Selected

Chapter 15: Strategy #2 For Sentence Completions and Passage-Based Reading Questions: Determining Key Words

Section and Question #	Reason why the answer I originally selected is wrong	Evidence for the correct answer (line # and phrase)	New Answer Selected



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Strategy #3 For Sentence Completions and Passage-Based Reading Questions: Determining Important Relationships in the Text



1. SAT Worksheet: Warm-Up

1 SAT Worksheet: Warm-Up

Directions: Fill out the following table with passage-based reading questions that you did for homework that you did not get correct.

Section and Question #	Reason why the answer I originally selected is wrong	Evidence for the correct answer (line # and phrase)	New Answer Selected



2 Determining the Relationships Between Parts of the Passage

The reading passages presented in the SATs can be long and, quite frankly, boring. Therefore, it is important to stay engaged with the passage as you read. As discussed in the previous chapter, it is important to identify the main point(s) in each paragraph and the main point of the entire passage and the tone or attitudes conveyed in the passage. It can also be helpful to think about how the sentences and paragraphs connect to each other. Some sample relationships between the paragraphs may be the following:

- provide a greater explanation of a topic presented in the previous sentence or paragraph
- provide other details, an example, or a personal anecdote related to a topic presented in the previous sentence or paragraph
- provide a contradiction to the statement made in the previous sentence or paragraph
- provide a conjecture or hypothesis about the topic presented in the previous sentence or paragraph
- discuss the implications of an idea or topic presented in the previous sentence or paragraph.
- transition to a new idea

Understanding the main points and elements of the passage can help you to understand the passage better and answer questions, particularly ones about the main idea and tone more effectively.



2. Determining the Relationships Between Parts of the Passage

2.1 Practice

Directions: Read the following passage and answer the questions that follow:

A general impression prevails with the large picture-loving public that a special training is necessary to any proper appreciation of Rembrandt. He is the idol of the connoisseur because of his superb mastery of technique, his miracles of chiaroscuro, his blending of colors. Those who do not understand these matters must, it is supposed, stand quite without the **pale** of his admirers. Too many people, accepting this as a dictum, take no pains to make the acquaintance of the great Dutch master. It may be that they are repelled at the outset by Rembrandt's indifference to beauty. His pictures lack altogether those superficial qualities which to some are the first requisites of a picture. Weary of the familiar commonplaces of daily life, the popular imagination looks to art for happier scenes and fairer forms. This taste, so completely gratified by Raphael, is at first strangely disappointed by Rembrandt. While Raphael peoples his canvases with beautiful creatures of another realm, Rembrandt draws his material from the common world about us. In place of the fair women and charming children with whom Raphael delights us, he chooses his models from wrinkled old men and beggars. Rembrandt is nevertheless a poet and a visionary in his own way. "For physical beauty he substitutes moral expression," says Fromentin. If in the first glance at his picture we see only a transcript of common life, a second look discovers something in this common life that we have never before seen there. We look again, and we see behind the commonplace exterior the poetry of the inner life. A vision of the ideal hovers just beyond the real. Thus we gain **refreshment**, not by being lifted out of the world, but by a revelation of the beauty which is in the world. Rembrandt becomes to us henceforth an interpreter of the secrets of humanity. As Raphael has been surnamed "the divine," for the godlike beauty of his creations, so Rembrandt is "the human," for his sympathetic insight into the lives of his fellow men.

Even for those who are slow to catch the higher meaning of Rembrandt's work, there is still much to entertain and interest in his rare story-telling power—a gift which should in some measure compensate for his lack of superficial beauty.



His story themes are almost exclusively Biblical, and his style is not less simple and direct than the narrative itself. Every detail counts for something in the development of the dramatic action. Probably no other artist has understood so well the pictorial qualities of patriarchal history. That singular union of poetry
50 and prose, of mysticism and practical common sense, so striking in the Hebrew character, appealed powerfully to Rembrandt's imagination. It was peculiarly well represented in the scenes of angelic visitation. Jacob wrestling with the Angel affords a fine contrast between the strenuous realities of life and the pure white ideal rising majestically beyond. The homely group of Tobit's family is
55 glorified by the light of the radiant angel soaring into heaven from the midst of them.

From: <https://www.gutenberg.org/files/19602/19602-h/19602-h.htm>

Directions: Answer the questions below. Any questions that ask about evidence for your answer should reference particular parts of the text. Remember, the SATs will ask questions that are supported by text and the correct answers will have strong evidence supporting them in the text. Also, this type of exercise will help you to think of your own answer choice before looking at the multiple choice answers on the SATs.

1. What is the main idea of the passage? _____
2. What is the passage's main purpose? _____
3. What is your evidence for this? _____
4. What is the relationship between the 2 paragraphs? _____
5. What is the author's attitude towards Rembrandt? _____
6. What is your evidence for this? _____
7. How does the author's attitude towards Rembrandt compared to her attitude about Raphael? _____
8. What is your evidence for this? _____
9. How does the author feel about the public? _____

2. Determining the Relationships Between Parts of the Passage

10. What is your evidence for this? _____
11. “Pale” most closely means _____
12. What is the purpose of mentioning Rembrandt’s “rare story-telling power”? _____

13. Why does the author include the description of “Jacob wrestling with the angel”? _____
14. What is your evidence for this? _____



3 Practice

4 Strategies for Paired Passages

Some SAT Reading Comprehension sections will include paired passages, in which there will be two passages on the same topic. There could be two short or two long passages. You will want to use all of the active reading strategies that we have talked about in previous sections. In addition, at the end of the second passage, you will want to ask yourself how the two passages are the same and how they are different. For example, one may be in favor of a topic and the other might be generally in favor of the same topic with some exceptions that they describe in the passage.

Some relationships between passage 1 and 2 may be characterized by the following:

- Passage 2 provides evidence that proves the argument made in Passage 1.
- Passage 2 elaborates on claims made in Passage 1.
- Passage 2 exposes the flaws in the argument made in Passage 1.
- Passage 2 provides an exception to the rule established in Passage 1.
- Passage 2 contradicts the opinion presented in Passage 1.

4.1 Practice with Paired Passages

Directions: Read the following paired passages and answer the questions that follow.

Passage 1

A general impression prevails with the large picture-loving public that a special training is necessary to any proper appreciation of Rembrandt. He is the idol of the connoisseur because of his superb mastery of technique, his miracles of chiaroscuro, his blending of colors. Those who do not understand these matters must, it is supposed, stand quite without the **pale** of his admirers. Too many people, accepting this as a dictum, take no pains to make the acquaintance of the great Dutch master. It may be that they are repelled at the outset by Rembrandt's indifference to beauty. His pictures lack altogether those superficial qualities which to some are the first requisites of a picture. Weary of

the familiar commonplaces of daily life, the popular imagination looks to art for happier scenes and fairer forms. This taste, so completely gratified by Raphael, is at first strangely disappointed by Rembrandt. While Raphael peoples his canvases with beautiful creatures of another realm, Rembrandt draws his material
70 from the common world about us. In place of the fair women and charming children with whom Raphael delights us, he chooses his models from wrinkled old men and beggars. Rembrandt is nevertheless a poet and a visionary in his own way. “For physical beauty he substitutes moral expression,” says Fromentin. If
75 in the first glance at his picture we see only a transcript of common life, a second look discovers something in this common life that we have never before seen there. We look again, and we see behind the commonplace exterior the poetry of the inner life. A vision of the ideal hovers just beyond the real. Thus we gain **refreshment**, not by being lifted out of the world, but by a revelation of the beauty which is in the world. Rembrandt becomes to us henceforth an interpreter
80 of the secrets of humanity. As Raphael has been surnamed “the divine,” for the godlike beauty of his creations, so Rembrandt is “the human,” for his sympathetic insight into the lives of his fellow men.

Even for those who are slow to catch the higher meaning of Rembrandt’s work, there is still much to entertain and interest in his rare story-telling power—
85 a gift which should in some measure compensate for his lack of superficial beauty. His story themes are almost exclusively Biblical, and his style is not less simple and direct than the narrative itself. Every detail counts for something in the development of the dramatic action. Probably no other artist has understood so well the pictorial qualities of patriarchal history. That singular union of poetry and prose, of mysticism and practical common sense, so striking in the Hebrew character, appealed powerfully to Rembrandt’s imagination. It was peculiarly well represented in the scenes of angelic visitation. Jacob wrestling with the Angel affords a fine contrast between the strenuous realities of life and the pure white ideal rising majestically beyond. The homely group of Tobit’s family is
90 glorified by the light of the radiant angel soaring into heaven from the midst of them.

Passage 2



4. Strategies for Paired Passages

While the world pays respectful tribute to Rembrandt the artist, it has been compelled to wait until comparatively recent years for some small measure of
100 reliable information concerning Rembrandt the man. The sixteenth and seventeenth centuries seem to have been very little concerned with personalities. A man was judged by his work which appealed, if it were good enough, to an ever-increasing circle. There were no newspapers to record his doings and, if he chanced to be an artist, it was nobody's business to set down the details of
105 his life. Sometimes a diarist chanced to pass by and to jot down a little gossip, quite unconscious of the fact that it would serve to stimulate generations yet unborn, but, for the most part, artists who did great work in a retiring fashion and were not honored by courts and princes as Rubens was, passed from the scene of their labors with all the details of their **sojourn** unrecorded.

110 Rembrandt was fated to suffer more than mere neglect, for he seems to have been a light-hearted, headstrong, extravagant man, with no capacity for business. He had not even the supreme quality, associated in doggerel with Dutchmen, of giving too little and asking too much. Consequently, when he died poor and enfeebled, in years when his collection of works of fine art had been sold at
115 public auction for a fraction of its value, when his pictures had been seized for debt, and wife, mistress, children, and many friends had passed, little was said about him. It was only when the superlative quality of his art was recognized beyond a small circle of admirers that people began to gather up such fragments of biography as they could find.

120 Shakespeare has put into Mark Antony's mouth the statement that "the evil that men do lives after them," and this was very much the case with Rembrandt van Ryn. His first biographers seem to have no memory save for his undoubtedly recklessness, his extravagance, and his debts. They remembered that his pictures fetched very good prices, that his studio was besieged for some years
125 by more sitters than it could accommodate, that he was honored with commissions from the ruling house, and that in short, he had every chance that would have led a good business man to prosperity and an old age removed from stress and strain. These facts seem to have aroused their ire. They have assailed his memory with invective that does not stop short at false statement. They have
130 found in the greatest of all Dutch artists a never-to-do-well who could not take

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advantage of his opportunities, who had the extravagance of a company promoter, an explosive temper and all the instincts that make for loose living.

From: <https://www.gutenberg.org/files/19602/19602-h/19602-h.htm> and
<https://www.gutenberg.org/files/20607/20607-h/20607-h.htm>

1. What is the main idea of passage 2? _____
2. What is the main purpose of passage 2? _____
3. What is your evidence for this? _____
4. What is the relationship between the paragraphs in passage 2? _____
5. What is the author's attitude towards Rembrandt? _____
6. What is your evidence for this? _____
7. "Sojourn" most closely means _____
8. What is your evidence for this? _____
9. List the similarities between Passage 1 and Passage 2. Be as specific as possible.
 -
 -
 -

10. List the differences between Passage 1 and Passage 2. Be as specific as possible.
 -
 -
 -
 -
 -

11. What is the relationship between passage 1 and passage 2? _____



4. Strategies for Paired Passages

12. What is your evidence for this? _____

13. Do you think that the author of passage 1 would agree with the statement in passage 2 that “They have found in the greatest of all Dutch artists a never-to-do-well who could not take advantage of his opportunities”?

14. What is your evidence for this? _____

subsection Some additional strategies for paired passages

- Carefully read any _____ describing or giving information about the two passages.
- Note that the first group of questions refers to the _____; the second group of questions refers to the _____; and the last group of questions refers to both passages as they relate to each other. Therefore, consider reading the first passage, then answering the _____, and then reading the _____ and answering the questions about _____ and finally, answering the remaining questions.
- Be aware that the first question can (and sometimes does) ask for the primary purpose of both passages.
- In conclusion: Be aware of how the passages are alike and different. As you are reading each passage, looking for the main point, structure, and _____ of each passage. Then, determine the _____ between the two passages.



5 Practice

17

Vocabulary



1. Vocabulary Words

1 Vocabulary Words

List 1

1. astute- discerning, carefully understanding
2. callousness- heartless, insensitive
3. despoil- to rob, to plunder
4. erudite- learned, scholarly
5. expeditious- with great speed or haste
6. gauche- vulgar, tasteless
7. innocuous- harmless
8. irresolute- indecisive
9. lucid- clear, understandable
10. obstinacy- determination to the point of stubbornness
11. occlusion- blocking, to make unclear
12. pedestrian- ordinary, mundane
13. punctilious- meticulous, pain-stakingly detail-oriented
14. scrupulous- honorable, trust-worthy
15. scrutinize- to carefully look over, trying to find errors

List 2

1. amalgamation- merger, union
2. anachronism- something located in the wrong time period. For example, a cell phone in a movie about the 1850s.
3. distension- undergoing swelling or being swollen



4. enigma- a mystery
5. finesse- discretion, delicacy
6. husbandry- solid farming or agricultural principles
7. ignominy- humiliation, embarrassment
8. lackadaisical- lazy, nonchalant
9. lucrative- financially worthwhile
10. modicum- a small amount, tiny, meager
11. obsequious- flattering particularly motivated by a lower status
12. pathos- pitiful or suffering, despair
13. rustic- rural, pastoral, bucolic
14. supposition- a belief or guess
15. tenacity- relentless, not giving up

List 3

1. belligerent- aggressive, quarrelsome
2. bombastic- loud and arrogant
3. candor- openness, frankness
4. capricious- unpredictable, changeable
5. decorous- well-mannered, well-behaved
6. eloquent- having nice and pleasant speech
7. equivocate- to be evasive, vacillate
8. irascible- irritable, easily angered
9. nullify- to strike down, to get rid of

1. Vocabulary Words

10. ossify- to fossilize or to harden
11. perfidy- treachery, disloyalty, deceit
12. sanguine- confident, cheerful, optimistic
13. venerable- respected, honored
14. viable- possible, still living
15. zenith- at the top, pinnacle

List 4: Tone/Attitude Words Part I

1. auspicious- showing or suggesting that future success is likely
2. accusatory- to charge of wrong doing
3. apathetic- indifferent
4. apprehension- anxiety or fear that something bad or unpleasant will occur
5. bewildering- unbelievable, to confuse
6. bitter- exhibiting strong animosity due to pain or grief
7. condescension- a feeling of superiority
8. callous- unfeeling
9. critical- finding fault
10. contemptuous- showing or feeling that something is worthless
11. conviction- a strong belief or opinion
12. cynical- pessimistic, believing that people are generally selfish and dishonest
13. derision- scorn, mockery
14. diffidence- lacking confidence, not feeling comfortable acting or speaking about something



15. disdainful- scornful

List 5: Tone/Attitude Words, Part II

1. derisive- ridiculing, mocking
2. detachment- being able to separate oneself from something
3. dubious- doubtful
4. equivocal- not easily understood or explained e.g. because something has two or more meanings
5. fanciful- free, using the imagination
6. foreboding- fearful apprehension, a feeling that something bad will happen
7. haughty- proud to the point of arrogance
8. incredulous- not able or willing to believe something
9. indignant- marked by anger aroused by injustice
10. judgemental- authoritative, often to the point of being critical
11. mocking- treating with contempt or ridicule
12. morose- gloomy, sullen, despondent
13. multifaceted- having many different parts
14. nonchalant- not caring
15. nostalgia- pleasure that is caused by remembering the past with a slight hint of sadness that you can not go back to that time

List 6: Tone/Attitude Words, Part III:

1. objective- an unbiased view, able to leave personal judgements aside
2. pretension- people who think of themselves as more impressive, successful, or important than they really are



1. Vocabulary Words

3. puzzlement- a feeling of confusion
4. resentment- a feeling of anger or displeasure about something
5. resigned- feeling that nothing is going to change
6. reverent- treating a subject with honor and respect
7. ridiculing- somewhat contemptuous banter, making fun of
8. sardonic- scornfully and bitterly sarcastic
9. satiric- ridiculing to show weakness in order to make a point or to teach
10. sentimental- based on or showing feelings or emotions rather than reason or thought.
11. sincere- honest and genuine, without deceit or pretense
12. solemn- deeply earnest, tending toward sad reflection
13. speculative- questioning
14. tacit- implied, unspoken
15. whimsical- odd, strange, fantastic, fun

List 7

1. aspersion- criticism, smear
2. coalesce- to bring together, to combine
3. extol- to praise
4. harbinger- a sign that something is about to happen
5. grandiloquent- pompous, rowdy
6. incongruous- not matching with those around it, different
7. ostentatious- flashy, showy, gaudy
8. punitive- disciplinary, trying to correct wrongdoings



9. redoubtable- formidable, fearsome
10. satiate- to become satisfied
11. stoic- unable to be moved or changed
12. stymied- to be stopped, thwarted, or blocked
13. talisman- a charm used for good luck
14. unprecedented- having never happened before, not the model or example
15. variegated- multi-colored

List 8

1. avert- to avoid
2. clairvoyant- able to see the future, psychic
3. cumbersome- having difficulty moving around
4. dogma- central belief
5. diaphanous- transparent, delicate
6. exculpate- to free or release
7. flotsam- debris, trash
8. egalitarian- believing in a free and classless society
9. implacable- unable to be appeased
10. mercurial- volatile, erratic
11. meticulous- careful with details
12. ostracize- to banish
13. palpable- able to be ingested or taken up
14. truculence- defiance, insolence
15. vituperative- insulting, offensive