

Take ACTion on the ACT

Tips and strategies are covered in this booklet, but practicing is key to success. Additional practice problems can be found at actstudent.org or the ACT smartphone app. If you have any questions, call one of our centers listed on the back cover or chat with us live at get2college.org.

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ACT: Strategies

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WHAT IS THE ACT AND WHY IS IT IMPORTANT?

The ACT is a standardized test colleges use in three different ways.

1

First, it helps colleges determine if you are admissible. Though the ACT is only one of many factors, it is one of the most important.

2

Second, many colleges use the ACT along with other factors to determine how much scholarship money to award you. The following charts are examples of the types of ACT scholarships Mississippi colleges might award students. *Keep in mind that scholarships vary from college to college.*

COLLEGE #1 – 4 year			COLLEGE	E #2 – 4 year COLLEGE #3 – 2		#3 – 2 year	
ACT	Scholarship		ACT	Scholarship		ACT	Scholarship
24	\$1,000		22-24	Tuition		21-24	Half Tuition
25	\$1,500		25-26	Tuition,		25-27	Full Tuition
26	\$1,800		27+	room and		28+	Tuition,
27	\$2,200			board			room,
28	\$2,500	27+ Tuition,				board and	
29	\$3,250			room, board, fees			books
30	\$4,000				board, fees		
31	\$5,250	- 1					
32	\$6,250						

3

33+

\$7,344

The **third** way that many colleges use the ACT is to place you, when necessary, into remedial classes. The following chart is an example of remedial class placement with regard to your ACT Math subscore.

Math ACT Subscore	Class Placement
15 or below	Beginning Algebra
16-18	Intermediate Algebra
19 or above	College Algebra

College Algebra is the first college level math class that students must pass in order to fulfill the math requirement at many colleges. If you score a 12 on the ACT Math section, it is likely you will have to take one or two math classes before taking College Algebra. While you should take remedial classes if necessary, doing so costs time and money. Remedial classes do not count toward the number of college credits you need in order to graduate from college. Taking remedial classes also means you will be in college for a longer period of time, which usually affects how much money you pay to a college; remedial classes aren't free.

WHAT DOES STANDARDIZED MEAN?

To say that the ACT is "standardized" means that every student typically takes the same basic test. It is scored the same way for every student, and it is offered at the same times every year (September, October, December, February, April, and June). Because it is standardized, the ACT is one of the few aspects of your application that can be compared across states, cities, schools, and even countries.

There is good news here for you. Because the ACT is a "standardized" test, you know exactly what will be tested and how the questions will be asked. The ACT doesn't change much from year to year. That means you can predict and prepare for every question type.

NOTE: There are a few testing dates (usually December, April, and June) when you can order YOUR test for review. The ACT will send you a list of your answers, the test questions, answer key, and scoring instructions. You have to pay an extra \$20.00 for this service, and it is time-limited (up to three months after you take the test). This is an excellent study source for you!

IS THE ACT AN IQ TEST?

The ACT is NOT an IQ test! If this is how you've been approaching the ACT: "I'll just wake up on Saturday, take the test, and do the best I can," you are not giving yourself your best shot.

The ACT is a subject area based test, which means it is based on the classes you take in high school. This test is written on the 11th grade level, meaning you should have taken the classes you need to be prepared for the ACT by the end of your junior year.

WHAT IS THE FORMAT OF THE ACT?

The ACT is divided into four sections and will take roughly three hours and 15 minutes. Each section is formatted the same way **every time** the ACT is offered. The ACT is also always ordered the same way: English, Math, Reading, then Science, followed by the *optional* 40-minute essay.

Section	Number of questions	Time (minutes)	Content
English	75	45	grammar, usage, mechanics, and rhetorical skills
Mathematics	60	60	pre-algebra, elementary algebra, intermediate algebra, coordinate geometry, geometry, and elementary trigonometry
Reading	40	35	reading comprehension
Science	40	35	interpretation, data analysis, evaluation, reasoning, and problem-solving
<i>Optional Writing</i> Test	1 essay prompt	40	Writing – some schools require the Writing Test –- check out: https://actapps.act.org/writPrefRM/

HOW IS THE ACT SCORED?

The questions you answer correctly in each section will be counted. No points are deducted for incorrect answers. Then, your raw score will be converted into a scaled score (1-36). The following table outlines one example of how ACT converts raw scores into scaled scores.

This is a sample chart. Each test will vary slightly regarding the number of questions answered correctly and the scaled score that you will receive.

Scaled Score	English	Math	Reading	Science
36	75	60	40	40
35	73-74	59	39	39
34	71-72	58	38	-
33	70	56-57	37	38
32	69	55	36	37
31	67-68	54	35	-
30	66	52-53	34	36
29	65	50-51	32-33	35
28	63-64	48-49	31	33-34
27	62	45-47	30	32
26	60-61	42-44	29	30-31
25	58-59	40-41	27-28	28-29
24	56-57	37-39	26	26-27
23	54-55	35-36	24-25	25
22	52-53	33-34	23	23-24
21	49-51	31-32	22	21-22
20	46-48	29-30	20-21	19-20
19	43-45	26-28	19	18
18	41-42	24-25	18	16-17
17	39-40	21-23	16-17	15
16	36-38	17-20	15	14
15	33-35	14-16	14	13
14	30-32	11-13	12-13	12
13	28-29	9-10	11	11
12	26-27	7-8	9-10	10
11	24-25	6	8	9
10	22-23	5	6-7	7-8
9	20-21	4	-	6
8	17-19	3	5	5
7	14-16	-	4	4
6	11-13	2	3	3
5	8-10	-	-	-
4	6-7	1	2	2
3	4-5	-	-	1
2	3	-	1	-
1	0-2	0	0	0

This chart should be encouraging to you because getting just a few more questions correct in each section can boost your composite score. Applying the specific testing strategies you learn in this workshop ought to help you get a few more questions correct in each section.

GENERAL TEST-TAKING TIPS HOW TO THINK ABOUT THE ACT

In order to do the best you can, you need to work on three main areas: content, endurance, and testing strategies. If you don't know basic math content, strategies and endurance are not going to matter much. Build your endurance so that you can sit comfortably taking a test for 3+ hours. Know the strategies well enough to use them during the test without having to think about them too much.

Highest Score = Content Knowledge + Strategies + Endurance

These skills can be developed, but developing them means that practice is necessary!



Think of the ACT as a basketball game. It would be absurd for a basketball team to play a game without practicing for it. Usually, teams practice for several weeks before their first game, even if it is a game against an inferior team. For big games, the practice sessions are more frequent and more intense. So before you take the ACT, you need to practice ACT strategy fundamentals!

How much should you study prior to the test? That depends. Some professionals recommend practicing almost every day for several weeks before the test, while others recommend taking a certain number of practice tests. In the end, it is up to you. These two things are clear:

- 1. Be consistent with your studying and make sure to take practice exams.
- 2. Cramming for the ACT won't work!

Important Small Things

Just like a sporting event, it is important for you to have a game plan. The ACT is a long test, which requires stamina on your part.

- Make sure you are well rested before you take the test. Most students need more than eight hours of sleep per night in order to be well rested. Several nights prior to your test, make sure you are sleeping well and long enough.
- Eat a good, well balanced breakfast. Give your body some time to digest breakfast before the test. However, make sure your breakfast is filling enough to keep you from being hungry during the test. Also, eat a good snack during the test.
- Have a stress management plan. Manage your stress during the test by taking deep breaths often, stretching when needed, and sitting up straight. Do what you need to do in order to remain calm.
- Don't psych yourself out during the test! For example, if you have answered "B" four times in a row and you are tempted to do so again, don't think to yourself, "Well, I've answered B four times in a row. This next answer *can't* be B." It very well might be B.
- Stay active during the test. If you finish a section early, don't put your head down thinking it will help you conserve energy. It's more likely to make you groggy for the next section. Keep your brain active the whole time!

The Test Booklet

Your answer sheet is the only thing that is graded. The ACT graders don't care how you use the test booklet. Mark up your test booklet. Physically cross out wrong answers, draw diagrams, and don't be afraid to show your work. On the ACT Reading section, underline key parts of the passages, and make notes in the margins as you go.

Process of Elimination (POE)



Every multiple choice question on the ACT has three wrong answers and only one correct answer, except for math questions which have four wrong answers and only one correct answer. By looking for the wrong answers instead of the correct ones, you will often be left with just a few answer choices from which you can make an educated guess. If you can narrow down your choices to two answers by **Process of Elimination (POE)**, you have a 50/50 chance at guessing the right one, even if you don't know what the right answer actually is.



On the ACT there is NO GUESSING PENALTY!

This means that you should fill in an answer on all 215 questions on the ACT!

You won't know the correct answer on every question, so use your **POE** skills to make educated guesses.

Guessing Blindly

There are a few questions in each section that many students have absolutely no clue how to solve. When this happens, you want to make sure to make a guess. You have a 1/4 or 1/5 chance of getting the question right. But, don't just guess in a random way! Pick a **spot of the day**. It doesn't matter which spot you pick — the second spot (B or G), the third spot (C or H), etc. It does matter whether you pick the same spot when you have no idea how to eliminate any of the answers. Picking the same spot each time maximizes your chances of getting some of those questions right (think about it for a moment).



Don't Worry Too Much about "Hard" Problems

The ACT isn't scored like a typical test where the hard questions are worth more points than the easy ones. **On the ACT, every question is worth the same amount.** How does this help you? Since all the questions are worth the same amount, don't rush through the easy and medium questions to get to the hard ones. Concentrate on the easy and medium questions so that you won't lose points on questions for which you know the answer.

Order of Difficulty

Manage your time effectively. Determining the **order of difficulty** on each section helps you. The proctor will not check to make sure you are answering the questions in chronological order, so it is better to skip around and answer the questions from easiest to hardest. Managing your time is difficult. Being able to identify easy, medium, and hard questions helps you to use your time better. It also helps you concentrate on the questions you are likely to answer correctly.

Bubbling

Think about your bubbling strategy before you take the exam. Decide on the most efficient bubbling method for you. Whatever method you pick, make sure to pick one that helps you keep track of your answers, and make sure you have practiced your method enough times to be comfortable with it.

- Some students do well by answering all the questions on a page or section and transferring the answers before moving on to the next page or section.
- Some students prefer to transfer the answers five at a time.
- Some students find that bubbling in the answers one at a time, question-by-question, is an inefficient way of filling in answers and takes up too much time.

Time Management

Most students can't do well on the ACT without managing their time properly. You are not allowed to use cell phones during the test, and testing centers might not be well equipped with clocks or timers, so you should wear a watch during the test. It needs to be one that doesn't make any noise. Ideally, you should wear a watch with a stopwatch (no sound) function which allows you to set the timer for each section of the test.



RESOURCES TO HELP YOU PREPARE

The information in this introduction to the ACT and the general test taking strategies are good things to know. However, they will only get you so far in your efforts to do well on the ACT. In order to do as well as you can, you need to master certain ACT specific strategies. The following list contains resources intended to help you do that:

- Sign up for free "testGEAR" test preparation available online call your Get2College Center for instructions.
- ACT has practice exams available free of charge. Visit www.actstudent.org.
- You can access the "ACT Question of the Day" at www.actstudent.org.
- These books are also good places to start:
 - The Princeton Review: Cracking the ACT
 - The Princeton Review: Crash Course for the ACT
 - Peterson's The Real ACT Prep Guide
- A free mobile app from ACT is available for iPhone and iPod touch. The ACT Student app helps you manage the ACT testing experience, including a practice feature.
- Ask your high school counselor for a free *Preparing for the ACT* test booklet. This is an old ACT test put into a practice booklet with the answers in the back.

	2016-17 TEST DATES	
TEST DATE	REGISTRATION DEADLINE	LATE FEE REQUIRED
September 10, 2016	August 5, 2016	August 6-19, 2016
October 22, 2016	September 16, 2016	September 17-30, 2016
December 10, 2016**	November 4, 2016	November 5-18, 2016
February 11, 2017	January 13, 2017	January 14-20, 2017
April 8, 2017**	March 3, 2017	March 4-17, 2017
June 10, 2017**	May 5, 2017	May 6-19, 2017

** You can request a copy of your test questions and answers on these dates.

ACT FEES		TAKE NOTE!
ACT (NO WRITING) ACT PLUS WRITING LATE FEE Fee waivers are offered students pay for the AC counselor can give you a	\$39.50 \$56.50 \$25.00 to help lower income T. Your high school a waiver if you qualify.	If you receive accommodations for a professionally diagnosed and documented disability, visit actstudent.org for a list of accommodations you can receive on the ACT as well as the policy for submitting documentation for the accommodations. When registering for the ACT, be sure to have your payment or fee waiver (if applicable) and a photo of yourself to upload to your admissions ticket. On test day, you'll need to be sure to bring your admission ticket with your photo on it along with a photo ID.
For ACT Inquiries: 319.33 www.actstudent.org	37.1270 or	No colleges or universities in Mississippi require the

ACT Writing section. However, if you plan on attending a school out of state, be sure to ask the admissions representative the school's policy on the ACT Writing section.

Get2College Centers – Live Chat at get2college.org or call Jackson: 601.321.5533 | Gulf Coast: 228.875.4441 | North MS: 662.349.2789



ACT: Math

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ACT MATH SECTION BREAKDOWN

Section	# of Questions	Time (minutes)	Content
Mathematics	60	60	pre-algebra, elementary algebra, intermediate algebra, coordinate geometry, plane geometry, and elementary trigonometry

The ACT Math section tests relatively simple math concepts presented in obscure ways. There are no excuses for being surprised by the type of questions asked on the ACT Math section. Below is a sample of questions the ACT Math section may contain. **The actual number of questions in each subject may change**.

33 Algebra Questions

- Pre-Algebra questions will be based on basic number theory and manipulation of fractions and decimals.
- Algebra I/Elementary Algebra questions will be based on liner equations, ratios, percentages, etc.
- Algebra II/Intermediate Algebra questions will be based on exponents, roots, quadratics, etc.

23 Geometry Questions

- Plane Geometry questions will be based on angles, shapes, etc.
- Coordinate Geometry questions will be based on slope, graphing, midpoint, etc.

4 Trigonometry Questions

- Elementary Trigonometry questions will be based on sine, cosine, tangent, trigonometric identities, trigonometric functions, etc.

Note: Although this is a sample of how many questions may be asked in each subject, you can be confident that the majority of questions on the ACT Math test will be from Algebra and Geometry. Focus your time studying these subjects!

GENERAL MATH SECTION QUICK FACTS

In general, the easier questions tend to come at the beginning of the math section, and the difficult questions tend to come at the end.

- An **easy** math question is one that will likely take you less than a minute to complete.
- A medium math question will take you a little longer, possibly right at a minute.
- A **hard** math question will likely take you longer than a minute to solve, possibly even several minutes.

Keep in mind that these are general guidelines. That means that you might see a difficult math question in the middle of the section or an easy question towards the end. Sometimes, this can mean there is an additional step such as a conversion to complete before solving the problem.

TIPS ON APPROACHING THE MATH SECTION

The first time you work through the Math section, complete all of the easy questions immediately. These will typically be among the first 30 questions. Be sure to avoid making careless mistakes. Mark the medium questions as you proceed. These will be the questions that you think you can work but may take some extra time.

When you see hard questions, ones that you have no idea how to solve, pick your **spot of the day** and move along. But remember, if you can eliminate one answer choice before picking your spot of the day, you increase your chances of getting the correct answer.

Avoid doing math when you can.

This means knowing how to use your calculator wisely, applying the strategies, and using logic instead of formulas whenever possible. Remember this distinction: there is a difference between getting the mathematically correct answer and figuring out enough about the problem to eliminate some answers and circle the correct one. You only have to do enough math to eliminate the wrong answers!

(2) Break down word problems.

Ask yourself what the answers represent. Usually, the question at the end of the word problem will help. Break the problem into sections, using only the information you need in order to solve the problem. Writing down the different sections helps you organize the problem in your mind.

Remember: a word problem is just a regular math problem with more words.

Here is the same problem presented in two different ways:

- 1. 160 students went on a trip to Washington, D.C. If there were 28 more girls than boys on the trip, how many boys went on the trip?
- 2. X + X + 28 = 160

Answers on the ACT Math section are usually ordered (from least to greatest or greatest to least).

This means you should always start with answer choice C. If it isn't the right answer, you can eliminate other answers as well. For example, if C is too small a number, and the order of answers is least to greatest, you know that D or E has to be the right answer. If you work the problem and D is also too small, you know that E is the right answer without even testing it.

Pace yourself.

Math is the longest section in regard to how much time you have. Pace yourself accordingly.

5 Wear a watch.

Track the amount of time spent on each problem. Make sure you are not wasting too much time working on one problem.

CALCULATOR QUICK FACTS

- Remember to take a calculator to the test. Make sure you are familiar with how to use it. Some calculators aren't permitted on the ACT, so make sure you check the ACT website for the list of approved calculators (www.actstudent.org).
- Your calculator only does what you tell it. Use the calculator as a tool, not a crutch.
- Always set up the problem on paper first. By doing this, you will prevent confusion and careless errors.
- Don't rely on the memory function.
 Instead, use your booklet as scratch paper to write out formulas.
- Make sure you are performing equations in the proper order, whether on the calculator or by hand.



- Make sure your calculator has fresh batteries. It is always a good idea to replace old batteries with new ones before the test, just in case.

MATH TERMS AND FUNDAMENTALS

You cannot use the math strategies effectively if you do not know mathematics fundamentals, such as definitions, order of operations, etc. Below are some math fundamentals you will find helpful on the ACT Math section. If you are unfamiliar with the terminology or concepts and you realize that you need remedial work, seek additional help as soon as possible.

Key Term	Definition
Integer	Any number that is not a fraction
Real Number	Any rational or irrational number
Rational Number	Any integer or fraction
Prime Number	Any number divisible by only one and itself
Remainder	The number left over when one integer is divided by another
Absolute Value	The distance a number is from zero
Product	Multiply
Quotient	Divide
Sum	Add
Difference	Subtract
Consecutive	Integers in a sequence
Distinct	Non-Repeats
Union	The collection of elements that lie in sets A, B, or both
Intersection	The point where two lines meet

Math Fundamentals continued from page 4

Key Term	Definition
Ratio	A comparison between two amounts. Ratios can be written in a few different ways: - A/B - the ratio of A to B - A:B
Fraction	A fraction is the relation between a part to its whole.
Proportion	A proportion is the relation between two quantities. <i>Direct variation</i> is simply another term for a proportion. As one quantity goes up, so does the other. <i>Indirect variation</i> is the exact opposite, when one quantity goes up as the other goes down.
Diameter	A straight line going through the middle of a circle connecting two points on a circumference
Radius	Half of the diameter; A straight line from one point on the circumference of a circle to the center point
Pi	The ratio of a circle's circumference to its diameter; It is approximately 3.14.
Hypotenuse	The side opposite of the right angle in a right triangle

Know the rules of multiplying and dividing exponents, raising a power to a power and expressing fractional and negative exponents. Remember, exponents are just a simple way of writing multiplication. When in doubt about exponents, use the rules of MADSPM (Multiply-Add, Divide-Subtract, Power-Multiply). Also, remember this:

- A negative number raised to an even power becomes positive.
 - Example: (-3)² = 9
- A negative number raised to an odd power stays negative.
 - **Example:** $(-4)^3 = -64$
- If you square a positive fraction less than one, it gets smaller.
 - **Example:** $\left(\frac{1}{2}\right)^2 = \frac{1}{4}$
- To make a negative exponent positive, rewrite the expression as its reciprocal.

• **Example:**
$$5^{-2} = \frac{1}{5^2} = \frac{1}{25}$$

Arithmetic calculations must be performed in the correct order of operations: PEMDAS
 P = parentheses. Perform calculations within parentheses first.

- E = exponents. Raise terms to their exponents next.
- \mathbf{M} = multiplication. Multiplication and division go together. Work them left to right.
- D = division. Multiply and divide terms from left to right.
- A = addition. Addition and subtraction go together. Work them left to right.
- **S** = subtraction. Add and subtract terms from left to right.
- 3 Be sure to practice working all arithmetic operations with fractions. Let your calculator help you whenever possible.
- (4) Zero and one are never prime numbers! Usually, the ACT will ask one question which directly tests this concept.

5 Understand the difference between **mean, median, and mode**.

The **mean**, or average, is simply the sum of a set of *n* numbers divided by *n*.

The **median** of a group of numbers is the middle number, just as on the highway the median is the divider at the center. Here are the steps to finding the median:

- 1. Put the numbers in order from least to greatest.
- 2. If there is an ODD number of numbers, the middle number is the median.
- 3. If there is an EVEN number of numbers, take the average of the middle two numbers.

The **mode** of a group of numbers is the number that appears the most. If two numbers tie for the most appearances, the set of data has two modes.

(6) Use the **chair method** to solve permutation and combination questions.

Permutations describe the different ways that items can be arranged in a definite order. For example, they may ask how many ways six different people can be seated at a dinner party. Simply make a "seat" for each spot that you have to fill. In each seat, write how many different "people" can sit down. Remember that people put into previous seats are unavailable. Then, multiply these numbers.

Example: How many ways can 5 people sit in 5 seats? 5 x 4 x 3 x 2 x 1 = 120

Make sure you know the basic formulas and properties for geometry.

You will benefit from knowing the properties of special right triangles. Knowing these will help you avoid taking extra time to use the Pythagorean Theorem.



NOTE

You will not be given any formulas on the ACT. That means you need to memorize the formulas that are most helpful. The following formulas and properties are typically tested on the ACT:

Area of a Triangle = ½(base)(height)

Pythagorean Theorem = $a^2 + b^2 = c^2$ *Used only with right triangles, where **a** and **b** are legs, and **c** is the hypotenuse.

Area of a Circle = πr^2

Circumference of a Circle = 2nr or nd

Area of a Square/Rectangle = (base)(height)

Volume of a Rectangular Solid = (length)(width)(height)

Perimeter = sum of all side lengths

A line is a 180 degree angle.

The sum of the interior angles of a triangle is **180°**. The sum of the interior angles of a four-sided polygon is **360°**. Add **180°** to the sum of the interior angles for each additional side added to a polygon.

The **slope-intercept equation of a line** is *y=mx+b* where *m* is the slope and *b* is the y-intercept.

Parallel lines always have the same slope. **Perpendicular lines** always have opposite reciprocal slopes.

Slope Formula: $\frac{y_2 - y_1}{x_2 - x_1}$

Midpoint Formula: $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

Distance Formula: $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Equation of a Circle: $(x-h)^2 + (y-k)^2 = r^2$ *(*h*,*k*) represents the center point of the circle

When a third line cuts across two parallel lines, the small angles are all equal and the large angles are all equal. The sum of a small angle and a large angle is equal to 180 degrees.

Example:



ALGEBRA TACTICS

Now that you have been reminded about the kinds of basic math operations you need to know, it's time for some specific math strategies. There are two main tactics that help you avoid doing complicated algebra: **Plugging In** and **Using the Answer.** These two strategies will help you solve many of the ACT Math problems.

Avoiding algebra helps you turn complex algebra problems into problems that your calculator can solve. Because the ACT doesn't require you to solve problems the "right" way, your goal should simply be to solve problems as quickly as possible. Less algebra = less time and fewer mistakes!

REMEMBER

The answer choices are typically in order. Always start with the middle answer (C or H). If you learn that answer is too high or too low, you will know which answer to try next and which ones you can eliminate.

Tactic 1: Plugging In

Plugging in your own numbers allows you to avoid using algebra to solve ACT Math problems. Algebra works great when you are in math class and you have to solve each problem by showing work for each step in order to get full credit. In many cases, using algebraic formulas on the ACT can cost you time. Remember, you don't get extra points on the ACT for working the problem out the "right way." Use this tactic whenever you see a variable in the problem and the answer choices. Look for key words such as "in terms of." Here are the steps you should take to use this tactic:

- Set up the problem and choose different numbers to represent each variable. Assign each variable a different number. **Do not** use 1 or 0 for your numbers. These numbers cause you to calculate the same answer for multiple answer choices. Pick numbers that make sense. For example, if you are working a problem about percentages, use numbers that are multiples of 10.
- 2. Solve the problem using the numbers you chose.
- 3. Write down the answer you find and circle it. This is your target number.
- 4. **Plug in** your numbers into the variables in the answer choices and perform the calculations. Remember to begin with answer choice C or H. When your target matches one of the answers, that's the answer you should select.



Example ①

If the sum of three consecutive odd integers is p, then in terms of p, what is the greatest of these three integers?

- А. (р-6)/3
- В. (р-3)/3
- С. р/3
- D. (p+3)/3
- E. (p+6)/3
- **Step 1:** Pick three consecutive odd integers. Do not use 1 or 0.
- **Step 2:** Solve the problem using your numbers. What is the sum of the 3 consecutive odd integers you chose? This answer will represent *p* in the answer choices.
- **Step 3:** What is the question asking? It's asking for the greatest of the three integers. What is the greatest of the three integers you chose? That's your target.
- **Step 4:** Solve the answer choices using the numbers you chose. Plug in your answer for *p* to find the correct target.

Example (2)

If w hats cost z dollars, how many hats can you buy with \$100?

- A. 100/wz
- B. 100/w
- C. 100w/z
- D. wz
- E. 100wz
- **Step 1:** Choose a number to represent w and a number to represent z. Use numbers that are easily divisible into 100.
- **Step 2:** Solve the problem using your numbers. How many hats could you buy with the numbers you chose?
- Step 3: Once you have your answer, circle it. This is your target.
- **Step 4:** Solve the answer choices using the numbers you chose. Plug in your numbers for *w* and *z*, and one of the answer choices will be your target.

Tactic 2: Using the Answer

This tactic allows you to work the problem backwards to solve questions quickly and turn difficult questions into easy ones. Use this tactic when there are numbers in the answer choices or you feel the urge to write out a long algebraic expression. Here are the steps to using this tactic:

- 1. Label the answer choices so you know what they represent.
- 2. Start with answer choice C or H and solve the problem using the number.
- 3. If the question is a word problem, remember to break apart the information. Start writing immediately and try not to get stuck thinking about the problem in your head. Always ask yourself what the numbers in the answer choices represent.

Example ①

Marc is half as old as Tony and three times as old as Ben. If the sum of their ages is 40, how old is Marc?

A.	3	Step 1: Whose ages are represented in the answer choices? Label the
В.	6	answer choices.
С.	12	
D.	18	Step 2: Solve the problem using the answer choices, beginning with C.
E.	24	How do we get from Marc's age to Tony's age? How do we get
		from Marc's age, to Ben's age?

Marc's Age (Answers)	Plus	Tony's Age	Plus	Ben's Age	Equals
A. 3	+		+		40
В. 6	+		+		40
C. 12	+		+		40
D. 18	+		+		40
E. 24	+		+		40

Example (2)

For 2 consecutive integers, the result of adding the smaller integer and triple the larger integer is 79. What are the 2 integers?

- A. 18, 19
- B. 19, 20
- C. 20, 21
- D. 26, 27
- E. 39, 40
- **Step 1:** What do the answer choices represent? We are supposed to add the smaller number, which is the first number, plus 3 times the larger number, which is the second number.
- **Step 2:** Starting with answer C, perform the operations. Which answer choice will give us 79?

GEOMETRY TACTICS

Many of the geometry problems are not difficult to solve. The trick is figuring out how to solve them without spending too much time doing so. For any geometry problem, make sure to do the following:

- If a figure is given, label it with all the information that is given in the problem.
- If there is no picture, draw your own.
- Remember to study your formulas!
- Solve the problem using logic and critical thinking whenever possible. Use your eyes to eliminate illogical answers.



When solving this problem, think about it logically instead of mathematically. What is the area of the entire square? Approximately how much does the shaded region cover? Now, subtract the approximate area of the shaded region from the area of the entire square. Which answer choice is closest to that answer?



In the figure, ABCD is a rectangle. If the area of triangle ABE is 40, what is the area of the rectangle?

- A. 20
 B. 40
 C. 48
 D. 80
- E. 112

Again, think about this question logically. If triangle ABE has an area of 40, you know that the area of rectangle ABCD must be larger than 40. Use **process of elimination** to narrow down your answer choices. Once you have eliminated the illogical answers, review the remaining answers. If you were to draw a straight line from point E to side BC, that would create a reflection of triangle ABE. Since it is a reflection, the areas would be the same. Now, you know the area must be greater than 80 because 40 + 40 = 80, and there is still a portion of the rectangle remaining. What's the most logical answer?



ACT: English

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ACT ENGLISH BASICS

The ACT English test consists of five passages with a total of 75 questions in 45 minutes. Skipping around strategically will not help you in English as it does in the other ACT sections. Instead, practice pacing yourself and answering the questions as you go.

The most effective practice is timed. Give yourself **9 minutes** total to read one passage and answer all associated questions. Both during practice and on test day, wear a watch to make sure you are pacing yourself.

Section	# of Questions	Time (minutes)	Content
English	75	45	grammar, usage, mechanics, and rhetorical skills

You'll need to incorporate both grammar (usage/mechanics) and editing (rhetorical) skills.

Usage/Mechanics (40 Questions) Punctuation Grammar and Usage Sentence Construction

Rhetorical Skills (35 Questions)

Writing Strategy Organization Style

The English section of the ACT is different from other sections. In order to do well on this section, you'll have to know the formal rules of the English language. You'll need to practice your grammar, punctuation, and usage rules. You can't use specific strategies in the same way you could on other sections.

The 7 Parts of Speech Tested on the ACT

- 1. Verbs are used to indicate actions or states of being. *Examples:* to spell, to be, to read
- Nouns indicate people, places, objects, and ideas. They can always be preceded by a(n) or the. *Examples:* bird, test, Mississippi
- 3. Pronouns replace nouns. *Examples:* I, you, him
- 4. Prepositions indicate where something/someone is or when something happened. *Examples:* under, along, beneath
- 5. Adjectives modify nouns and pronouns. *Examples:* small, interesting, deep
- 6. Adverbs modify verbs, adjectives, and other adverbs. *Examples:* especially, very, rapidly
- 7. Conjunctions indicate relationships between words, phrases, and clauses. *Examples:* and, therefore, because

ENGLISH STRATEGIES

Although the ACT tests grammar rules that you already know, it does so in a way that might lead you to make mistakes, namely by encouraging you to rely on the way something sounds and giving you unnecessary information. To focus on what's being tested, use these tips:

(1) Assume everything that is not underlined is correct.

You will want to **read the entire passage** instead of just skipping to the underlined section. This is different than the ACT Reading section, where you can jump around. If a sentence or a paragraph does not have a corresponding question, then that may mean the next question will ask about what came before. When answering questions, assume that everything not underlined is correct. Pick out **context clues** to make the underlined portion match the rest of the passage.

Irust your ear, but verify.

There will be times on the ACT English section when you can read the question and find the correct answer based on what **sounds correct.** The ACT may try to trick you by giving you answers that sound right, but aren't. Review your **grammar rules** to help select the best answer choice.

3 Use Process of Elimination (POE).

Just as you would in any other section, use **process of elimination** to rule out illogical answers. This will increase your chances of answering the question correctly.



4 Cut out the fat.

The ACT English section often separates the subject and verb to confuse the reader. With your pencil, cross out the "fat," or extra words, such as prepositional phrases, in the sentence to help you identify the central sentence for accurate editing.

(5) The shortest answer is usually right if it makes sense.

The ACT English section is looking for straightforward, concise writing. They want to make sure you can cut through the fluff and write simply. Apply this rule, remembering the shortest answer is usually right if it makes sense.

USAGE/MECHANICS

These questions comprise 40 of the 75 questions in the English section. They are broken into three categories:

- **Punctuation:** Punctuation questions ask you to identify and correct any misplaced, misused, or missing punctuation marks. The punctuation marks most commonly tested on the ACT are, in order of decreasing frequency: commas, apostrophes, colons, and semicolons.
- **Basic Grammar and Usage:** Basic Grammar and Usage questions usually target a single incorrect word that violates the conventional rules of English grammar. These questions frequently test knowledge of agreement and pronoun and verb forms and cases.
- **Sentence Structure:** Sentence Structure questions tend to deal with the sentence as a whole. They test on clause relationships, parallelism, and placement of modifiers.

Punctuation Review

Commas are used in four ways on the ACT:

- Around unnecessary information:
 - My father, an English professor, likes to read nonfiction books.
- Between items in a list:
 - o I bought milk, eggs, and bread at the grocery store.
- Between a complete and incomplete clause:
 - Since it was raining, we could not go for a swim.
- Before FANBOYS (for, and, nor, but, or, yet, so):
 - o John wanted tea to drink, but the store did not have any.

Apostrophes are used to indicate possession or to mark the missing letters in a contraction.

- Nancy borrowed Jennifer's shirt. (possession)
- You shouldn't forget to study. (contraction for should not)

Colons are used after a complete statement to introduce a list of related details or an explanation.

o I watch several genres of movies: dramas, comedies, and science fiction.

Semicolons are used to relate independent clauses that are not joined by a conjunction.

o She calls it pop; I call it soda.

Dashes are used to indicate an abrupt break in thought or to introduce an explanation.

• For our vacation – which was way too short – we went to the beach.

NOTE

Don't be afraid to select **DELETE the Underlined Portion** or **NO CHANGE** as the answer. They are correct just as often as the other choices. **Don't avoid selecting these answers!**

Sentence Structure Review

Sentence Structure questions test your knowledge of how sentences and ideas should be joined or separated. These errors will typically be tested through *clauses*.

There are two types of clauses that will be tested:

Independent Clauses (Main) – A group of words that contains a subject and verb and expresses a complete thought. An independent clause makes a complete sentence.

Dependent Clauses (Subordinate) – A group of words that contains a subject and a verb but does not express a complete thought. A dependent clause cannot be a sentence and must be joined to an independent clause.

Run-on Sentences can be easy to spot because they tend to be long and confusing. A run-on sentence occurs when independent clauses are joined together without any punctuation.

- Incorrect: My friend went to Paris she saw the Eiffel Tower.
- Correct: My friend went to Paris. She saw the Eiffel Tower.

Comma Splice is an error in which two independent clauses are separated only by a comma.

- Incorrect: Paul wanted to go to the mall, he wanted to see a movie.
- Correct: Paul wanted to go to the mall, and he wanted to see a movie.

Fragments are incomplete sentences. Usually, fragments are pieces of sentences that have become disconnected from the main clause.

- Incorrect: When you get back from shopping.
- Correct: We will cook dinner when you get back from shopping.

Modifiers are descriptive words or phrases used to add depth or dimension to the phrase that they modify. Modifiers are misplaced if they do not actually refer to what they are modifying.

- Incorrect: Walking into the store, Marsha's necklace fell onto the ground.
- Correct: Marsha's necklace fell onto the ground as she was walking into the store.

Parallelism refers to the structure of a sentence in which all verbs are in the same form.

- Incorrect: Chris will attend college, major in biology, and maintaining good grades.
- Correct: Chris will attend college, major in biology, and maintain good grades.

NOTE: Once you have selected the answer you feel is best, reread the corresponding sentence(s) to ensure your selected answer sounds correct and that it has a good fit. Keep in mind the punctuation and words used, as an omission of one of these can make a huge difference.



Basic Grammar and Usage Review

Questions in this category test your understanding of agreement between subject and verb, between pronoun and antecedent, and between modifiers and the word modified. Verb formation, pronoun case, formation of comparative and superlative adjectives and adverbs, and idiomatic usage will also be tested.

Subject-Verb Agreement

Singular verbs must accompany singular subjects, and plural verbs must accompany plural subjects. Subject-verb agreement is a simple idea, but the writers of the ACT will make it tricky. Often, the ACT will separate the subject from the verb. **Cutting out the Fat** can be a useful method in helping you choose the correct answer.

- Incorrect: The team of Americans were the best in the country.
- Correct: The team of Americans was the best in the country.

Pronoun-Antecedent Agreement

An **antecedent** is a word to which a later pronoun refers. When the pronoun does not agree in gender or number with its antecedent, there's an agreement error.

- Incorrect: Each of the baseball players wore their jerseys to school.
- Correct: Each of the baseball players wore his jersey to school.



Modifier Agreement

Modifiers must agree with what they are modifying. **Comparative modifiers** are used to compare two things. To create a comparative form add **–er or more + adjective**.

Example: Traveling by plane is faster than traveling by car.

Superlative modifiers are used to compare three or more things. To create a superlative form add **–est or most + adjective**.

Example: This is the most delicious cake I have ever eaten.

NOTE

Although vocabulary isn't directly tested on the ACT, it's helpful to familiarize yourself not only with dictionary definitions, but also with the connotations or feelings/associations of words. This can help you answer questions referring to style and tone.

Additional Rules You Might Have Forgotten

Who/Whom

Who refers to the subject of a sentence or clause. It can be replaced with he, she, or they.

• Who can tell me the name of the second president?

<u>lt's/lts</u>

It's is a contraction for *it is*.

• It's going to be a beautiful day.

Whom refers to the object of a sentence or clause. It can be replaced with him, her, or them.

o To whom should I give my ticket?

Its indicates possession.

• The milk has passed its expiration date.

Your/You're

Your is a possessive pronoun.

• Your umbrella is next to the door.

Their/There/They're

Their shows possession among a group.

• The students are going on **their** trip today. There refers to a place or idea.
There is the bakery that I love.

They're is a contraction for *they are.*They're going to have a great time.

Who's/Whose

Who's is a contraction for who is.

• She's the one **who's** performing the solo.

Whose is the possessive form of who.Whose dog is baraking?

You're is a contraction for *you are.*You're going to enjoy the zoo.

RHETORICAL SKILLS

These questions comprise 35 of the 75 questions in the English section. Writers of the ACT break them down into three categories:

Writing Strategy: Writing Strategy questions are concerned with a passage's effectiveness. These questions require that you understand the point, purpose, and tone of a passage. When answering these questions, you must decide the best way to support a point with evidence, to introduce and conclude paragraphs, to make a transition between paragraphs, or to phrase a statement.

Organization: Organization questions can deal with individual sentences, individual paragraphs, or the passage as a whole. They will ask you either to restructure the passage or paragraph or to decide on the best placement of a word or phrase within a sentence.

Style: Style questions focus on effective word choice. They will ask you to eliminate redundancy and to select the most appropriate word or phrase. In order to answer style questions correctly, you will need to understand the tone of a passage.



ACT: Reading

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ACT READING BASICS

The ACT Reading test consists of four passages with a total of 40 questions in 35 minutes.

NOTE

Practice allowing yourself **9 minutes** total to read a passage and complete the 10 associated questions. Both during practice and on test day, wear a watch to make sure you are pacing yourself effectively.

Section	# of Questions	Time (minutes)	Content
Reading	40	35	reading comprehension

Reading Test Passages

The ACT Reading passages will be from four fields. The **Prose Fiction or Literary Narrative** passage is often the most time-consuming, and for that reason, we recommend saving it for last. Remember, every question is worth the same amount. Focus your time first on the more straightforward passages. Then, if time permits, work on the Prose Fiction or Literary Narrative passage. If you run out of time, use your **spot of the day**.

You will have four types of reading passages, and they will always come in this order:

- Prose Fiction or Literary Narrative
- Social Science
- Humanities
- Natural Science

Passages are drawn from books and periodicals such as *The New York Times, Scientific American*, and *The Atlantic Monthly*. One of the most effective ways to prepare is by practicing reading the type of material you'll be reading on the test.

Open Book Test

The ACT Reading section tests a different skillset than the reading comprehension skills in your high school English class. In school, you may be assigned a book to read and then be tested on details. Approaching the ACT Reading section in this way, reading every word and seeing how much you retain, is not a smart use of your time. Instead, think of the ACT Reading section as an open book test, where you have all the information you need right in front of you.

Interacting with ACT Reading Passages

Remember, the ACT is designed to predict how well you will perform academically in college. College level writing will require that you interact with the assigned text by **underlining** important words or characters and **making notes** in the margins. In college courses, students will also have a lot more to read in a short amount of time. Thus, they will have to learn to read quickly and skim to find main points. The ACT tests students to see if they actively read and interact with the passages, instead of passively reading without searching for main ideas.

GENERAL READING STRATEGIES

Read the Blurb

Each passage will be preceded by a blurb giving you details on what you are about to read. The blurb consists of a few short lines right before the passage begins. Many students skip reading this, but don't! The blurb will often give you details about the passage that you are about to read and can help you identify the main idea.

Search for the Main Idea

Actively look to identify the passage's **main idea**. For Humanities and Social Science passages, the main point is generally a straightforward explanation of an event, project, or individual's importance. For Natural Science passages, the main idea typically relates to a new discovery or the ways in which new research challenges a previously held theory. Literary Narrative and Prose Fiction passages tend to be less straightforward in presenting the main idea; however, the main idea could relate to an insight or goal the narrative drew from a given experience.

When the main idea is directly stated, it tends to appear most frequently at the end of the introduction or the end of the conclusion. Review these first. Typically, the correct answers for main idea questions tend to be more general rather than specific. They also won't have extreme language such as "always" or "never."

Circle Key Words

To avoid letting the ACT lead you to the wrong answer, go back into the passage before you answer a question. Circle key words in the question and skim the passage looking for those same words, guiding you to the information you need to know.

When answering questions that ask you to identify factual information without giving line references, identify a key word or phrase that you can locate. Then, think logically about where it would be located in the passage. Finally, read the corresponding information to find the correct answer.

Cover and Predict

Another strategy for actively searching for the correct answer is to physically cover up the answer choices when you read the question. Answer on your own before reviewing the answer choices. When you uncover the choices and find your answer in the choices, you'll be confident in your selection.

The majority of vocabulary tested within this section will not be used in their most common definition. Instead, pay attention to how the word is used within context.

BEWARE OF ANSWER TRAPS

A Little Off

The ACT may offer you an answer choice that may be true or related to the passage but does not answer the question that is asked.

Extreme Words

Words like *never, always, everyone, no one, best, worst,* etc. signal extreme language. The statement might be almost true, but it is written too strongly. When you see these words, eliminate the answer.

True, But Not Stated

These are statements that are something that you could infer from the passage but are not explicitly stated. The ACT hopes these answers trigger something you have learned and cause you to pick the wrong answer.

Exact Opposite

Sometimes, the ACT throws in wrong answers that are the exact opposite of what the passage says about a given subject. To avoid this trap, make sure you read the entire answer choice.

Half Wrong, Half Right

With this trap, part of the answer will be correct while another part will be wrong. The ACT hopes you will only read the first part, see that it's correct, and move on. Be sure to read the entire answer.

NOTE

Be careful not to interpret information given on the ACT. Instead, focus on what is directly stated in the passage. Correct answers are either directly stated in the passage, or the same information is restated in a different format.



SPEED READING STEPS

Many students find they run out of time to adequately asnwer the questions if they read every word in the passage. Instead, we recommend this "speed reading" strategy.

Step 1: Read the First Paragraph

After reading the blurb, read the first paragraph in full. The first paragraph usually gives readers a description of what the passage will be about.

Step 2: Read the Last Paragraph

The last paragraph typically sums up all of the preceding information in the passage. Again, you get a good idea of what the passage covered.

Step 3: Read the first sentence of each of the middle paragraphs.

The topic sentences of the middle paragraphs give the reader an idea of supporting details to back up the main idea. Additionally, they give you a good idea of where to find certain information that the questions may ask.

PROSE FICTION/LITERARY NARRATIVE STRATEGY

These passages ask about tone, mood, and motivation rather than focusing on literal comprehension. Since this passage usually takes longer, we recommend saving it for last.

These passages usually ask about:

- 1. Plot
- 2. Characters
- 3. Theme
- 4. Setting

Steps to solving questions based on a Prose Fiction or Literary Narrative passage:

Step 1: Read the blurb.

Step 2: Identify the characters.

Step 3: Look for dialogue which is the fastest way to find clues about the plot.

Step 4: As you read, watch out for figurative language and the author's use of literary devices.

Prose Fiction vs. Literary Narrative: What's the Difference?

Prose Fiction passages come from short stories and novels. Literary Narrative is a broad term which includes prose fiction as well as literary nonfiction. These passages may come from short stories, novels, memoirs, or personal essays. You will be given *either* a Prose Fiction or Literary Narrative passage, but never both.



POINT OF VIEW

Some questions will ask you about the point of view in which a passage is written.

The passages are typically written from two points of view:

- First Person (pronouns such as me or /)
 - o In Humanities passages, the first person point of view is usually from the author.
 - In Prose Fiction or Literary Narrative passages, the first person point of view is usually from a fictional character, the protagonist.
- Third Person (pronouns such as *he* or *she*)
 - Third person point of view is usually a narrator directly involved in the action or an interested observer.
 - Social Science and Natural Science passages are usually written in third person point of view.

TONE AND ATTITUDE

Questions about tone or attitude are testing the reader's ability to discern what the author, narrator, or other individual in the passage feels about a certain situation or person. A general rule is to first determine whether the tone or attitude is positive or negative. The chart below contains examples of positive and negative answer choices that have appeared on questions relating to tone or attitude in previous tests.

<u>Positive</u>	<u>Negative</u>
Accepting	Alarmed
Appreciative	Concerned
Confident	Confused
Enthusiastic	Disbelieving
Determined	Guarded
Intrigued	Impatient
Peaceful	Questioning
Respectful	Uncertain
Spirited	Unsettling

ANSWERING THE QUESTIONS

Once you take one or two minutes to speed read and find the author's main idea, jump straight into the questions. Resist, however, answering the questions as they are presented. As always, answer as many questions as possible in the given amount of time by answering easy questions first and hard questions last, remembering that they are all worth the same amount of points.



Easy Questions: Fetch the Answer

- These questions ask you about the passage, usually one word or phrase. Do these first!
- They often contain line numbers that tell you exactly where in the passage you need to look to find the answer.
- Do not rush through these and make careless mistakes.

EXAMPLE: As it is used in line 13, the word *popular* most nearly means:

Medium Questions: Read and Reason

- These questions ask about the author. Do these second!
- They might ask you to find information in the passage and then figure out how or why the author uses that information.
- When using process of elimination, look out for trap answer choices.

EXAMPLE: The main purpose of the fourth paragraph (lines 34-47) is to describe the:

Hard Questions: Big Picture

- These questions ask about the passage as a whole. Do these last!
- By the time you answer these questions, you will have a strong understanding about the passage.

EXAMPLE: One of the main ideas established by the passage is that:



ACT: Science

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ACT SCIENCE BASICS

The ACT Science test consists of six or seven passages with a total of 40 questions in 35 minutes.

The Science section is especially challenging for many students because it comes at the end of the ACT. One of the best things you can do to prepare is to take one full-length timed test before your scheduled ACT test day.

Section	# of Questions	Time (minutes)	Content
Science	40	35	interpretation, data analysis, evaluation, reasoning, and problem-solving

Time Management

Many students struggle with time management on the ACT Science section. One effective practice method is timing yourself. You have between **5 and 6 minutes** per passage, depending on how many passages are presented. Time yourself with each type of passage to acquaint yourself with the time limit.



Don't focus too much on science terminology. The ACT Science section isn't really a science test at all. Instead, it's a reading comprehension test where science is the subject. This means you can do well without being a science genius!

Open Book Test

The challenge with the ACT Science section is that, unlike other sections, you have probably never seen a test quite like it before. Whereas your science classes at your high school test you on memorizing various scientific terms and ideas, that sort of studying won't help you on this test. Instead, you need to practice analyzing both text and charts/graphs. Much like the ACT Reading, think of this as an open book test. Instead of reading every word or chart and then seeing how much you remember when you get to the questions, practice jumping between the questions and passage strategically.

Read Actively

The best way to avoid having to read a paragraph or chart multiple times is to read actively. Whether your style is to **summarize** with notes in the margins or **underlining** key variables in a chart, active reading is the most important skill you can develop to use your time most effectively. The ACT tests to see if you **actively read** and interact with the passages instead of passively reading without searching for main ideas.



IDENTIFY THE PASSAGE TYPE

Though you will have the same amount of time and the same number of questions on the ACT Science as you did for the ACT Reading, you'll be given either six or seven passages instead of four. Your first strategy towards effective time management will be to identify the passage type and complete the easier passages first. Remember, every question is worth the same amount.

Charts and Graphs (Data Representation)

These passages are the most straightforward. The questions will test your ability to read graphs and interpret tables and scatterplots. Because these passages are data representation presented through charts, tables, line graphs, scatterplots, etc., they tend to be the easiest to complete. We recommend completing these passages first. Jump straight into the chart/graph to get a feel for the data presented before you start answering questions.

Experiments (Research Summaries)

These passages are a hybrid of prose (explaining the experiment) and graphs (presenting the results). The questions ask about the design of experiments and interpretation of results. The "Experiments" passages will provide details of one or more related experiments. You may want to complete these types of passages second.

You'll need to cultivate both the skills to actively read prose and analyze a chart or graph to do well on these passages. Try reading about the experiments first to get a general understanding, then analyze the graphs and answer questions.



There will be one "Conflicting Scientists" passage, and it is typically the

most difficult and time-consuming. The format of this passage includes multiple individuals proposing conflicting viewpoints on one scientific idea. Representing these perspectives, you may see terms such as *Scientist 1/Scientist 2, Hypothesis 1/Hypothesis 2/Hypothesis 3,* or *Student 1/Student 2.*

Because this is usually the hardest passage, we advise saving it for last. Of course, if you run out of time and are unable to complete the "Conflicting Scientist" passage, be sure to choose your **spot of the day** so that you do not leave any questions blank. In order to do well on this passage, you'll need to have strong analytical reading skills. The viewpoints discussed will not be exact opposites of each other, so you'll need to analyze how the arguments agree and disagree.

Note: This is a sample of how the ACT Science passages could be broken down: 3 Charts and Graphs, 3 Experiments, 1 Conflicting Scientists. Although this is a sample, and the actual number of Charts and Graphs and Experiments passages may slightly vary, you can be confident that the majority of questions will come from those 2 types of passages rather than Conflicting Scientists.



ANSWERING THE QUESTIONS

Once you have a general feel for the information presented in the charts and graphs, you can jump straight into the questions. As always, rack up as many points as possible by answering easy questions first and hard questions last, remembering that they are all worth the same amount.

Unlike the ACT Reading section, the ACT Science section generally organizes the questions in order of difficulty. The challenge on this test is not allowing one question to take up too much of your time. Practice knowing when to pick your **spot of the day** and move on.

Easy Questions: "Fetch the Answer"

- Figure 1
- These questions ask about the passage, usually from a chart or graph.
- They usually come first, so answer them right after analyzing the information given.
- Do not rush, making careless mistakes on these questions.

Example (1) (Based on Figure 1)

36. According to the figure, which of the following is closest to the lowest frequency that can be heard by a human being?

F.	8 Hz
G.	20 Hz
H.	1,000 Hz
J.	20,000 Hz

Medium Questions: "Read and Reason"

- These questions ask you to slightly analyze the information presented.
 We recommend doing these second.
- When using **process of elimination**, look out for trap answer choices.

Example (2) (Based on Figure 1)

37. Based on the figure, a sound of a given frequency will have the highest intensity for which of the following sets of conditions?

	Sound is passing through:	S
F.	water	100%
G.	water	10 ⁻⁸ %
H.	air	100%
J.	air	10 ⁻⁸ %



Hard Questions: "Big Picture"

- These questions ask about the passage as a whole. Typically, you want to save these for last.
- By the time you answer these questions, you will have analyzed the information multiple times and hopefully have a very good idea about the general purpose of the passage.

Example ③ (Based on Figure 1)

- **38.** Based on the figure, does *S* depend on the frequency of a sound wave of a given intensity?
 - **F.** Yes, because as frequency increases, *S* increases.
 - **G**. Yes, because as frequency increases, *S* remains constant.
 - H. No, because as frequency increases, *S* increases.J. No, because as frequency increases, *S* remains
 - constant.

SIMPLIFYING STRATEGIES

Substitute to Simplify

Many students are intimidated by the scientific terms in the ACT Science section. Remember, this section is not about your knowledge of science. It tests your reading comprehension skills. If certain terminology is distracting you, just replace the terminology with words or symbols that make it easier to understand.

Circle Key Words

To avoid letting the ACT guide your brain to the wrong answer, always go back into the passage before you answer a question. One strategy is to circle key words in the question and then skim text as well as charts/graphs looking for those words to zero in on what you need to know.

Cover and Predict

Another strategy for actively searching for the correct answer is to physically cover up the answer choices when you read the question. Answer on your own before you uncover the answer choices. When you uncover and find your answer as one of the choices, you can feel confident that you got it right.

Use Process of Elimination (POE)

When you are stuck on answering a question, always fall back on **POE** to eliminate incorrect answer choices. Spend time going back to the passage to make sure that you make the best possible guess.

ANALYZING CHARTS AND GRAPHS

When you see a graph, no matter which kind it is, ask yourself three questions:

- 1. What are the variables? (temperature, number of plants, pressure, mph)
- 2. How are they measured? (grams, quarts, percentage)
- 3. What does the graph tell you?

Understanding the variables of the graph and the relationship between those variables is the best way to prepare before moving on to the questions. Remember, if you see a graph in the passage, the majority of questions will focus on interpreting the graph rather than the words in a passage. Focus mainly on the key words that help you understand what the graph is telling you.

Develop a habit of instantly identifying trends. Recognizing trends can help you answer more complex questions which require you to predict information. The Science section wants you to estimate and approximate. The test does not require that you come to an exact answer. Instead, use estimations to come to a close answer.

When working with line graphs, physically take your pencil and extend the graph. This will ensure the best estimation, and usually only one answer choice will be within the correct range.









Table 1		
Cosmic ray flux (particles/m ² /hr)	Cover of low clouds (%)	
340,000 360,000 380,000 400,000 420,000	27.8 28.1 28.4 28.7 29.0	

Table 1 adapted from E. Paleo Bagó and C. J. Butler, "The Influence of Cosmic Rays on Terrestrial Clouds and Global Warming." ©2000 by Institute of Physics Publications, Ltd.

TIP

Be sure that you are looking at the correct table, graph, or chart. Some charts may look very similar, so circling or underlining titles and key words can be helpful.

Table

USE YOUR LOCATORS

One key to effectively tackling the Science section is by using your locators. The most important part of answering questions is knowing where to look first. If the question references a specific figure or table, you know to look there. If the question says, "Based on the results of study..." you want to look at the data of a particular study. If the question says, "Based on study..." then your answer could be located in the test or the data of the study. If the question says, "According to the passage" or "Based on the information..." then the answer will most likely be found in the text of the study. Next, you want to know what to look for. Within each question, look for units or science terminology. This will help you determine exactly what information you are looking for. Using your locators can help you quickly and effectively answer questions within the Science section of the ACT.

EXPERIMENTS STRATEGY

Step 1: Speed Read the Prose

Start with getting a very basic understanding of what the experiment is about. Don't spend more than a minute on this initial summary. When reading, the best skill to practice is making enough notes so that you don't have to waste time re-reading the paragraph.

Step 2: Jump into the Graph

Similar to the "Charts and Graphs" passages, the majority of the questions on the "Experiments" passages will rely on your ability to analyze the charts and graphs. Once you get a general understanding of the experiment, go straight to the graph before you begin answering questions.

Step 3: Answer the Questions Strategically

As always, answer the questions in easy to hard order. The difficult part will be knowing when you need to skip a question before it eats up too much of your time.

CONFLICTING SCIENTISTS PASSAGE

Follow these steps to strategically break down this more time-consuming type of passage. At least two views about a scientific theory will be presented. Go over each theory briefly to understand the puzzle-fit of the arguments before answering the questions.

Step 1: Skim hypothesis 1 to determine the argument.

Step 2: Answer all questions that ask about hypothesis 1 only.

Step 3: Skim hypothesis 2 to determine the argument.

Step 4: Answer all questions that ask about hypothesis 2 only.

Step 5: Answer all questions that ask you to compare and contrast the two arguments.

Remember to tackle the "Conflicting Scientists" passage at the very end, spending the bulk of your time making sure you get the other passages correct.



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