TIPS AND TRICKS FOR ACT (AND TEST TAKING)

1. Triage the questions. In a hospital emergency room, the triage nurse is the person who evaluates each patient and decides who gets attention first and who should be treated later. You should do the same thing on the ACT. Every question is worth the same number of points, but they don't all take the same amount of time to solve. Your first job is to find the questions you can get quickly and easily, then go back to work on the ones that will take longer.

- If you understand the question and can do it quickly, do it right away.
- If the question looks doable, but time consuming, skip it for now. Circle that question number in your test booklet, and come back to it later. **Make sure to skip that line on your answer grid too!**
- If the question looks impossible, forget about it. Guess and move on.

Go through the test twice. Once for the easy ones, and a second time to work on the time consuming ones. Be extremely careful to grid your answers in the right place. And make sure that you don't leave any blank. Fill in an answer for every answer.

2. Put the question into a form that you can understand and use. ACT questions are rarely presented in the simplest, most helpful way. In fact, your main job for many questions is to figure out what the question means so you can solve it.

- Mark up your test booklet. Underline key words. Draw diagrams. Work out the problems. Cross out answers that you know are wrong.
- Reword the questions if necessary. What is the question that you are supposed to answer?

3. Ignore irrelevant information. Many questions give more information than you need. Your job is to figure out which information is useful and ignore the rest.

4. Answer the right question. The ACT often includes answers to a different question. A common form in questions with multiple variables is to ask for the solution to one of them, but providing the solution to others in the answer choices. If the question asks for x and you solve for y, you may have done the math right, but the answer still won't get any points. Always check the question again before choosing your answer to make sure your answer matches the question.

5. Look for the hidden answer. On many ACT questions, the right answer is hidden or disguised in one way or another. For example, you might work out a problem and get 1.5 as your answer, but then find that 1.5 isn't among the choices. Then you notice that one choice reads 3/2. You've found the hidden answer! It pays to think flexibly about numbers.

6. Guess if you can't figure out an answer for any question. If you leave an answer empty you have a 0% chance of getting it right. If you randomly guess, you have a 20% chance of getting it right. If you are able to eliminate 3 of the possible answer choices, and guess between the last two, you have a 50% chance of getting it right. Never leave blank answers.

7. Be careful with the answer grid. Even if you work out every question correctly, you won't get the points unless you mark them correctly on the answer grid. So be careful. Use the letter choices to help stay on track. The letters alternate between ABCDE and FGHJK, use this clue to make sure you're on the right question. If you're looking for answer A and you only see FGHJK, you'll know you're on the wrong answer grid.

8. Keep track of time. You need to go through the test twice in 60 minutes. In the first 30 minutes you should have gone through the test once, finding and answering the easy ones. In the next 30 minutes go over the test a second time. Guess on ones that you have no idea how to answer and work through the ones that take some time. If you're not finished when there are only 5 minutes remaining, stop and guess for all the rest.

Enemy #1: Time
How much time do you have per question on the Math test? You have just one minute, and that's generous compared to the rime given per question on the English, Reading, and Science tests. But how often do you take a test in school with a minute or less per question? If you do at all, it's maybe on a multiple-choice quiz but probably not on a major exam or final. Time is your enemy on the ACT, and you have to use it wisely and be aware of how that time pressure can bring on your worst instincts as a test-taker.

Enemy #2: Yourself
Many people struggle with test anxiety in school and on standardized tests. But there is something particularly evil about tests like the ACT and SAT. The skills you've been rewarded for throughout your academic year can easily work against you on the ACT. You've been taught since birth to follow directions, go in order, and finish everything. But that approach won't necessarily earn you your highest ACT score.

On the other hand, treating the ACT as a scary, alien beast can leave our brains blank and useless and can incite irrational, self-defeating behavior. When we pick up a No. 2 pencil, all of us tend to leave our common sense at the door. Test nerves and anxieties can make you misread a question, commit a careless error, see something that isn't there, blind you to what is there, talk you into a bad answer, and worst of all, convince you to spend good time after bad. There is good news. You can-and will-crack the ACT. You will learn how to approach it differently than you would a test in school, and you won't let the test crack you.

Personal Order of Difficulty (POOD)
If time is going to run out, would you rather it run out on the hardest questions or the easiest? Of course, you want it to run out on the points you are less likely to get right. You can easily fall into the trap of spending too much time on the hardest problems and either never getting to or rushing through the easiest. You shouldn't work in the order ACT provides just because it's in that order. Instead, find your own Personal Order of Difficulty (POOD). Make smart decisions quickly for good reasons as you move through each rest.

- **Now:** Does a question look okay? Do you know how to do it? Do it Now.
- **Later:** Will this question cake a long time to work? Leave it and come back co it Later. Circle the question number for easy reference to return.
- **Never:** Don't waste time on questions you should Never do. Instead, use more time to answer the Now and Later questions accurately.
- **Pacing:** The ACT may be designed for you to run out of time, but you can't rush through it as fast as possible. All you'll do is make careless errors on easy questions you should get right and spend way too much time on difficult ones you're unlikely to get right. Let your (POOD) help determine your pacing. Go slowly enough to answer correctly all the Now questions but quickly enough to get to the number of Later questions you need to reach your goal score.

The Best Way to Bubble In
Work a page at a time, circling your answers right on the booklet. Transfer a page's worth of answers to the scantron at one time. It's better to stay focused on working questions rather than disrupt your concentration to find where you left off on the scantron. You'll be more accurate at both tasks. Do not wait to the end, however, to transfer all the answers of that test on your scantron. Go one page at a time on English and Mach, a passage at a time on Reading and Science.

Letter of the Day (LOTD)
Just because you don't work a question doesn't mean you don't answer it. There is no penalty for wrong answers on the ACT, so you should never leave any blanks on your scantron. When you guess on Never questions, pick your favorite two-letter combo of answers and stick with it. For example, always choose A/For C/H. If you're consistent, you're statistically more likely to pick up more points.

Process of Elimination (POE)
Multiple-choice tests offer one great advantage: They provide the correct answer right there on the page. Of course, they hide the correct answer amid 3-4 incorrect answers. It's often easier to spot the wrong answers than it is to identify the right ones, particularly when you apply a smart Process of Elimination (POE).

POE works differently on each test on the ACT, but it's a powerful strategy on all of them. For some question types, you'll always use POE rather than wasting time trying to figure out the answer on your own. For other questions, you'll use POE when you're stuck. ACT hides the correct answer behind wrong ones, but when you cross off just one or two wrong answers, the correct answer can become more obvious, sometimes jumping right off the page. POOD, Pacing, and POE all work together to help you spend your time where it does the most good: on the questions you can and should get right. Spend more time to do fewer questions, and you'll raise your accuracy.

Example: John has x red pencils, and three times as many red pencils as blue pencils. If he has four more yellow pencils than blue pencils, then in terms of x, how many yellow pencils does John have?

a. x + 4
b. x + 7
c. x/6
d. (x + 12)/6
e. (x + 12)/3

Let's think about the bigger picture for a second here. We're all familiar which the x values from algebra class, but what we often forget is that x is substituting for some real value. Equations use x because that value is an unknown. The variable x could be 5 or 105 or 0.36491. In fact, the ACT writers are asking you to create an expression that will answer this question to find what that "certain number" is. And they want you to make it even harder on yourself by forgetting that x is number at all.

Example: If you had 1 dollar and you bought 2 pieces of candy at 25 cents apiece, how much change would you have? 50 cents, of course. If you had d dollars and bought p pieces of candy at c cents apiece, how much change would you have?

Numbers are a lot easier to work with than variables. Therefore, when you see variables on the ACT, you can usually make things a lot easier on yourself by using numbers instead. Whenever there are variables in the answer choices or the problem, you can use Plugging In.

Use plugging In

- when there are variables in the answer choices
- when solving word problems or plug-and-chug questions
- for questions of any difficulty level

Example: John has x red pencils and three times as many red pencils as blue pencils. If he has four more yellow pencils than blue pencils, then in terms of x, how many yellow pencils does John have?

a. x + 4
b. x + 7
c. x/6
d. (x + 12)/6
e. (x + 12)/3

Solution:

Step 1: Know the Question. Underline "how many yellow pencils does John have?" We're not solving for x here, but for the number of yellow pencils. ACT just wants us to name the value "in terms of x."

Step 2: Let the answers help. The answers help a lot here: Each contains the variable x which means we can Plug In.

Step 3: Break the problem into bite-sized pieces. We know we can Plug In. Let's take it step by step from there.

We want to make the math easy on ourselves, so let's say x = 3, so John has 3 red pencils. Now that we've dispensed with the variable, let's work the rest of the problem. John has 3 red pencils and three times as many red pencils as blue pencils. He therefore must have 1 blue pencil. He has four more yellow pencils than blue pencils, so he must have 5 yellow pencils.

So now we can answer the question with what is called our target answer. The question asks How many yellow pencils does john have?, to which our answer is 5. Circle this answer on your paper. Let's go to the answer choices and see which one gives us our target. Remember, x = 3.

a. x + 4 = 3 + 4 = 7
b. x + 7 = 3 + 7 = 10
c. x/6 = 3/6 = 1/2
d. (x + 12)/6 = (3 + 12)/6 = 15/6 = 5/2
e. (x + 12)/3 = (3 + 12)/3 = 15/3 = 5

Only choice (E) works, so this is our correct answer. Look how easy that was, and no algebra necessary!

Example: For all x ≠ 3, which of the following is equivalent to the expression $\frac{3x^2-7x-6}{x-3}$?

a. 3x + 2
b. 3x -2
c. 3(x - 2)
d. 3(x + 2)
e. x^2 - 2

Solution: This looks a lot more like a standard plug-and-chug, but remember, we can always plug in when there are variables in the answer choices. This will be a tough problem to factor, so Plugging In will probably be your best bet, even if you're an ace with quadratic equations. The only thing the problem tells us is that x ≠ 3, so let's say x = 2.

$\frac{3(2)^2-7(2)-6}{(2)-3} = \frac{3(4)-14-6}{-1} = \frac{-8}{-1} = 8$

We now know that for the value we've chosen, the value of this expression is 8. That means 8 is our target answer. Let's plug our x value into the answer choices and find the one that matches the target.

a. 3x + 2 = 3(2) + 2 = 8 (This matches our target answer, but when you Plug IN, always check all 5 answers)
b. 3x -2 = 3(2) – 2 = 6 – 2 = 4 (Not the target answer, cross it off)
c. 3(x - 2) = 3((2) – 2) = 3(4) = 12 (Not the target answer, cross it off)
d. 3(x + 2) = 3((2) + 2) = 3(4) = 12 (Not the target answer, cross it off)
e. $x^2 – 2 = (2)^2 – 2 = 2$ (Not the target answer, cross it off)

Only choice (A) worked, and it is the correct answer. So as we can see, Plugging In works for all kinds of algebra problems. Let's review what we've done so far.

WHAT TO DO WHEN YOU PLUG IN

1. **Identify the opportunity.** Can you plug in on This question?
2. **Choose a good number**. Make the math easy on yourself.
3. **Find a target answer.** Answer The question posed in The problem with your number, and circle your target answer.
4. **Test all the answer choices.** If two of them work, Try a new number.

Example: In my dear Aunt Sally's math class, there are four exams. The first three exam scores are averaged, and the resulting score is averaged with the final exam score. If a, b. and c are the first three exam scores, and f is the final exam score, which of the following examples gives a student's final score in the class?

a. $\frac{a+b+c}{3}$ +f
b. $\frac{a+b+c+3f}{6}$
c. $\frac{a+b+c+f}{4}$
d. $\frac{a+b+c+3f}{4}$
e. a + b + c + f

Solution: This is a word problem, so remember the basic approach.

1. **Know the question.** Underline the question in this problem: which of following gives a student's final score in this class?
2. **Let the answers help.** There are variables in each of these answer choices which means we can Plug In, so these answers will help a lot. If you want to do a bit of process of elimination (POE), you might notice that the problem is asking for an average, so choice (K) can't work. Also, something funny will need to happen with the f variable, so you can eliminate choice (H).
3. **Break the problem into bite-sized pieces**. If you rush through this problem, it's very easy to mess up. Go piece by piece.

The first three exam scores are averaged. There is no reason to give realistic exam scores here: We can pick whatever numbers we want, so let's use numbers that make the math easy. We know from this problem that the first three exam scores are represented by a, b, and c, so let's say a = 2, b = 3, and c = 4. The average of these three numbers can be found as follows: $\frac{2+3+4}{3} = \frac{9}{3} = 3$. The resulting score is then averaged with the final score.

The resulting score is 3, and we need to plug in some final score, f. Let's use another easy number and say f = 5. In averaging these two numbers together, we find $\frac{3+5}{2} = \frac{8}{2} = 4$.

Let's go to the answer choices and look for the one that matches the target. Remember, a = 2, b = 3, c = 4, and f = 5.

a. $\frac{2+3+4}{3} + 5 = \frac{9}{3} + 5 = 8$ (not correct)
b. $\frac{2+3+4+3(5)}{6} = \frac{24}{6} = 4$ (correct)
c. $\frac{2+3+4+5}{4} = \frac{14}{4} = 3.5$ (not correct)
d. $\frac{2+3+4+3(5)}{4} = \frac{24}{4} = 6$ (not correct)
e. 2 + 3 + 4 + 5 = 14 (not correct)

Choice (G) is the correct answer, and no tough algebra necessary!

HIDDEN PLUG-INS

Both of the above questions have had variables in the answer choices, which is dead giveaway that we can Plug In. The good news is that that's not the only time. In any problem in which there are hypothetical values or values relative to each other, Plugging In will work.

Example: If x - z = 6 and y = 3x -2 -3z. then y = ?

a. 2
b. 4
c. 14
d. 16
e. 18

Solution: There aren't any variables in the answer choices, but notice all values in problem are defined relative to one another. Let's Plug In.

Using the first equation in the problem, let's make the numbers easy on ourselves and say x = 8 and z = 2. Using these values, let's find the value for the express given in the problem: y = 3(8) -2 - 3(2) = 24 - 2 - 6 = 16, choice (D).

It may feel like we just pulled these numbers out of thin air, but try any two numbers that work in the equation x- z = 6, and you'll find that it always works.

PLUGGING IN THE ANSWERS

Plugging In is a great strategy when there are variables in the question or the answers. How about when there aren't? Does that mean we have go back to algebra? Of course not! On most problems on the ACT, there are a variety of ways to solve. Let's look at another one that helps to simplify the math in algebra-related problems.

Example: If $600 were deposited in a bank account for one year and earned interest of $42, what was the interest rate?

a. 6.26%
b. 7.00%
c. 8.00%
d. 9.00%
e. 9.50%

Before we get started cracking this problem, we should note a few things about it. First of all, there aren't any variables, but you get the feeling that you're going to have to put the $600 and the $42 in relationship to some other number by means an algebraic expression. Then, notice that the problem is asking for a very specific number, the interest rate, and that the answer choices give possibilities for that specific number in ascending order. All of chis taken together means that we can Plug In the Answers.

PLUG IN THE ANSWERS (PITA) when

- answer choices are numbers in ascending or descending order
- the question asks for a specific amount. Questions will usually be "what?" or "how many?"
- you see the urge to do algebra even when there are no variables in the problem

Solution:

1. **Know the question**. As we've already identified, we need to find the interest rate.
2. **Let the answers help.** The way the answer choices are listed has already indicated that we'll be able to PITA on this problem, so we'll be using the answer lot in this question.
3. **Break the problem into bite-sized pieces.** We're going to use the answer choices to walk through each step of the problem, working it in bite-sized pieces.

Because these answer choices are listed in ascending order, it will be best to to start with the middle choice. That way, if it's too high or too low, we'll be able to use process of elimination (POE) more efficiently.

Therefore, if we scare which 8.00% as our interest race, we can find what the annual interest on a $600 deposit would be by multiplying $600 x 0.08 = $48. Because the problem tells us that the deposit earned $42 of interest, we know choice (H) is too high, which also eliminates choices (J) and (K).

Let's try choice (G): You may find it helpful to keep your work organized columns as shown below.

Interest Rate	Rate per $600	= $42?
a. 6.26%		
b. 7.00%	$42	Yes
c. 8.00%	$48	No
d. 9.00%		
e. 9.50%		

We haven't introduced any of our own numbers into this problem, so once we find the correct answer, we can stop. The correct answer is choice (B).

Example: In a piggy bank, there are pennies, nickels, dimes, and quarters that total $2.17 in value. If there are 3 times as many pennies as there are dimes, 1 more dime than nickels, and 2 more quarter than dimes, then how many pennies are in the piggy bank?

a. 12
b. 15
c. 18
d. 21
e. 24

Solution:

1. **Know the question.** How many pennies are in the bank?
2. **Let the answers help.** There are no variables, but the very specific question coupled with the numerical answers in ascending order gives a pretty good indication we can PITA.
3. **Break the problem into bite-sized pieces.** Make sure you take your time with this problem, because you'll need to multiply the number of each coin by its monetary value. In other words, don't forget that 1 nickel will count for 5 cents, 1 dime will count for 10 cents, and I quarter will count for 25 cents. Let's set up some columns to keep our work organized and begin with choice (C).

Since ACT has already given us the answers, we will plug chose answers in and. work backwards. Each of the answers listed gives a possible value for the number of pennies. Using the information in the problem, we can work backwards from that number of pennies to find the number of nickels, dimes, and quarters. When the values for the number of coins adds up to $2.17, we know we're done.

If we begin with the assumption that there are 18 pennies, then there must be.6 dimes (3 times as many pennies as there are dimes). 6 dimes means 5 nickels (1 more dime than nickels) and 8 quarters (2 more quarters than dimes).

Now multiply the number of coins by the monetary value of each and see if they total $2.17.

Pennies ($P)	Dimes ($0)	Nickels ($N)	Quarters ($Q)	Total = $2.17
c. 18 ($0.18)	6 ($0.60)	5 ($0.25)	8 ($2.00)	Total = $3.03 (NO)

That's too high, so not only is choice (C) incorrect, but also choices (D) and (E). Cross them off and try choice B.

Pennies ($P)	Dimes ($D)	Nickels ($N)	Quarters ($Q)	Total= $2.17
a. 12 ($0.12)	4 ($0.40)	3 ($0.15)	6 ($1.50)	Total = $2.17 (YES)
b. 15 ($0.15)	5 ($0.50)	4 ($0.20)	7 ($1.75)	Total = $2.60 (NO)
c. 18($0.18)	6 ($0.60)	5 ($0.25)	8 ($2.00)	Total = $3.03 (NO)

NOTE ON PLUGGING IN AND PITA

Plugging In and PITA are not the only ways to solve these problems, and it may feel weird using these methods instead of trying to do these problems "the real way". You may have even found that you knew how to work with the variables in Plugging In problems or how to write the appropriate equations for the PITA problems. If you can do either of those things, you're already on your way to a great Math score.

Think about it this way: The ACT doesn't give any partial credit. So do you chink doing it "the real way" gets you any extra points? It doesn't: On the ACT, a right answer is a right answer, no matter how you get it. "The real way" is great, but unfortunately, it's often a lot more complex and offers a lot more opportunities to make careless errors.

The biggest problem with doing things the "real way", though, is that it essentially requires that you invent a new approach for every problem. Instead, notice what we've given you here: two strategies that will work toward getting you the right answer on any number of questions. You may have heard the saying, "Give a man a fish and you've fed him for a day, but teach a man to fish and you've fed him for a lifetime." Now, don't worry, our delusions of grandeur are not quite so extreme, but Plugging In and PITA are useful in a similar way.

Rather than giving you a detailed description of how to create formulas and work through them for these problems that won't themselves ever appear on an ACT again, we're giving you a strategy that will help you to work through any number of similar problems in ACTs.

PLUGGING IN: NOT JUST ALGEBRA

Remember what the main requirements are for a Plugging In problem. You need variables in the answer choices or question: that's it. It doesn't say anywhere that the problem needs to be a pure algebra problem. What is a pure algebra problem anyway? Don't forget: Part of what makes this test so hard is that ACT piles concept on cop of concept in its problems. In other words, geometry problems often are algebra problems.

WORD PROBLEMS VS. PLUG-AND-CHUG QUESTIONS

We prefer a simple definition of a word problem: It has to tell a story. But, plug-and-chug geometry questions can have so much information in them that they feel like word problems. So treat them like word problems.

1. **Know the question.** Read the whole problem before calculating anything and underline the actual question.
2. **Let the answers help.** Look for clues on how to solve and ways to use process of elimination (POE)
3. **Break the problem into bite-sized pieces.** When you read the problem a second time, calculate at each step necessary and watch out for tricky phrasing. For geometry questions, Step 3 has two specific additions:

a. **Step 3a:** Write all the information given in the problem on the figure. If there is no figure, draw your own.
b. **Step 3b:** Write down any formulas you need and fill in any information you have.

Example: A circle with center O has a radius r. What is the area of a circle with a radius three times larger?

a. $3\pi r$
b. $9\pi r$
c. $3\pi r^2$
d. $6\pi r^2$
e. $9\pi r^2$

Solution:

Step 1: **Know the question.** We need to find the area of this new larger circle, not the larger radius.
Step 2: **Let the answers help.** First of all, we're looking for the area, which means something will have to be squared, so we can eliminate choices (A) and (B), which can't be right. Now, notice that each of these answer choices has a variable in it. If you're thinking Plugging In, you're thinking right.
Step 3: **Break the problem into bite-sized pieces.** Let's pick an easy value for r, like = 2.
Step 3a: **Write all the information given in the problem on the figure**. There's no figure here, so draw 2 circles.
Seep 3b: **Write down any formulas you need and fill in any information you have**. The formula for the area of a circle that we'll need is $A= \pi r^2$.

If the original radius is 2, then the larger radius, which is three times larger, must be 6. Therefore, the area of the larger circle muse be $A = \pi (6)^2 = 36\pi$. We've got a target answer, so let's try it in the answer choices. Remember, we've already eliminated choices (A) and (B).

~~a. $3\pi r$~~
~~b. $9\pi r$~~
c. $3\pi r^2 = 12\pi$ (NO)
d. $6\pi r^2 = 24\pi$ (NO)
e. $9\pi r^2 = 36\pi$ (YES)

Choice (E) is the correct answer. Have another look at those answer choices and think of all the ways you could make mistakes on this problem. Plugging In saves the day again by minimizing the possibility for algebra errors.