



EXAM PSYCHOLOGY

SECRETS BEHIND MULTIPLE CHOICE QUESTIONS

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MULTIPLE CHOICE MADE SIMPLE

The Ultimate Guide To Test
Success!

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- ▶ Knowledge of the material alone isn't enough to do well on multiple choice tests. The truth about multiple choice tests is that they don't just test you on your knowledge of the material. They also test you on your test taking skills.

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- ▶ The good news is that your skills for answering multiple choice questions can be improved, and this guide will show you exactly how you can get better test results quickly!
- ▶ First of all, it's especially relevant to point out that there are no magic bullets in this guide that will work without knowing the material well!

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Your first line of defense is always your preparation.

- ▶ This starts in class with your note taking, progresses as you study, and ends with you getting the grade you want (hopefully).

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- ▶ So now that we've clarified that thorough knowledge of the content is still especially important, let's move on!

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Some Interesting Facts

In *Rock Breaks Scissors: A Practical Guide to Outguessing and Outwitting Almost Everybody*, author William Poundstone details an analysis he conducted on standardized test answer patterns.

For true/false questions, he found that true answers are more common than false answers, and that two dissimilar responses in a row (true, false, or false, true) are more likely than two similar responses (true, true, or false, false).

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Poundstone found that for questions with all of the above or none of the above as answer choices, the all, or none, options had a 52% chance of being correct.

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**STUDIES
SHOW**



ALL OF/NONE OF THE
ABOVE ANSWER CHOICES
ARE CORRECT

**52% OF THE
TIME**



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- ▶ Multiple choices studies show all of/none of the above answers are correct 52% of the time
- ▶ He also found that the probability of an answer choice being correct varies with the number of answer choices such that:
- ▶ There is an equally likely chance each answer is correct when the question has 3 answer choices (for example, A, B, and C).

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- ▶ There is a slightly higher chance that answer choice B is correct when the question has 4 answer choices (for example, A, B, C, and D).
- ▶ Answer choice E is most likely to be correct when the question has 5 answer choices (for example, A, B, C, D, and E),

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- ▶ Answer choice C is least likely to be correct when the question has 5 answer choices (for example, A, B, C, D, and E)
- ▶ We can sum this up with a graphic:

ANALYSIS RESULTS

GIVEN 3 ANSWER CHOICES

EACH ANSWER IS EQUALLY LIKELY TO BE
CORRECT

GIVEN 4 ANSWER CHOICES

ANSWER B IS MOST LIKELY TO BE
CORRECT

GIVEN 5 ANSWER CHOICES

ANSWER E IS MOST LIKELY TO BE
CORRECT

GIVEN 5 ANSWER CHOICES

ANSWER C IS LEAST LIKELY TO BE
CORRECT

"The quality of randomizing
decreases as the number of
options increases."

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What can we learn from this?

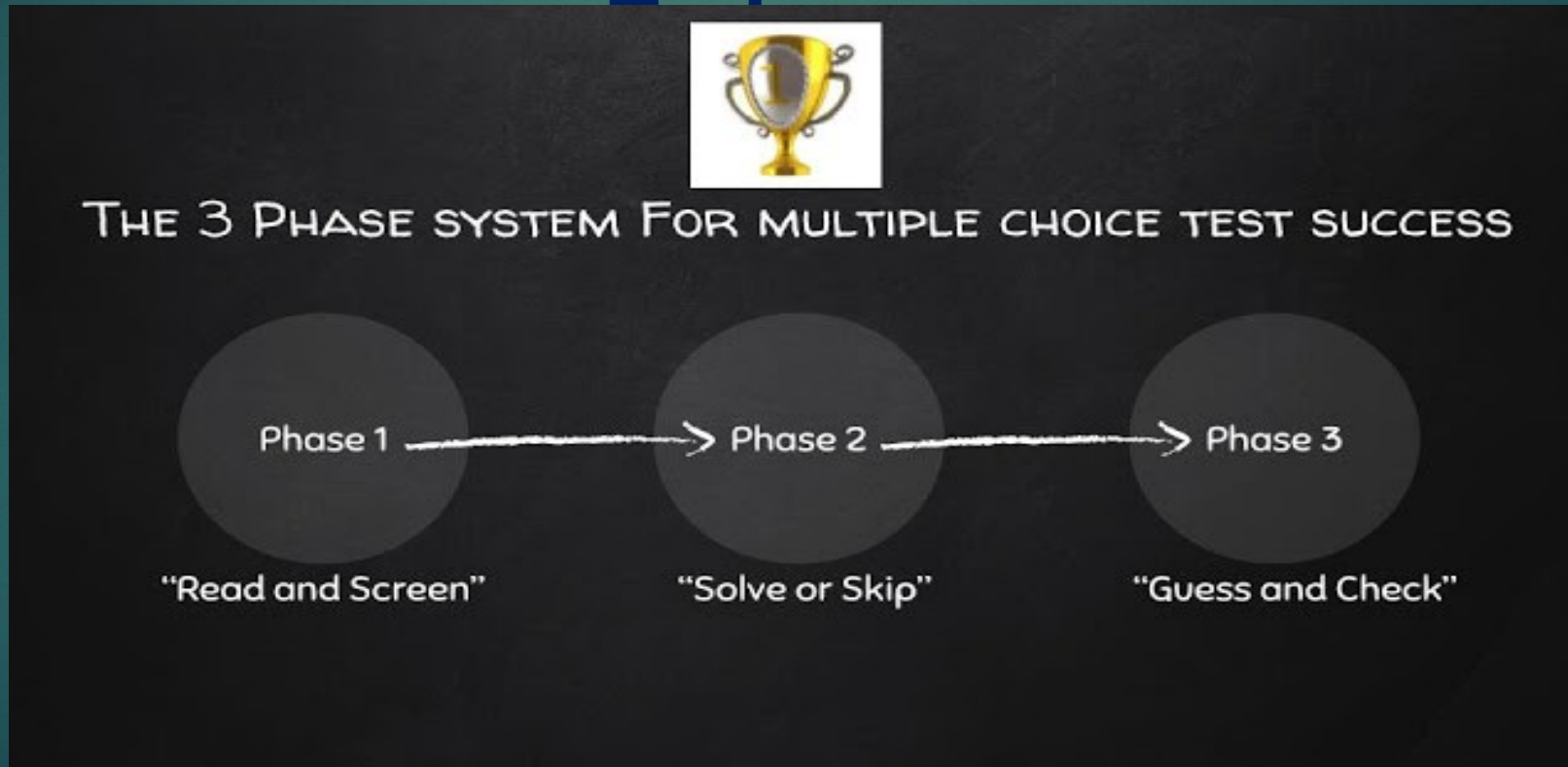
- ▶ Should you take it to the bank that true answers are more common than false answers on your next test?
- ▶ Well, maybe.
- ▶ But there's an even bigger takeaway here, namely that a lot of research has been done into how to ace multiple choice tests.

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- ▶ What you're about to learn in this guide are proven strategies to help you gain a huge advantage on your next test, regardless of the different types of multiple choice questions you get!

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The 3 Phase System for Multiple Choice



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Multiple choice 3 phase system

3 phase approach indicates that you cycle through the test questions in 3 waves. Let us see a brief overview of how it works.

- ▶ During the first phase (the read and screen phase), you're going to read each question and do all of them that you can answer in about a minute, while marking all of the questions you can't answer to come back to. Answering the easy questions first is a worthwhile test-taking strategy.

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- ▶ In the second phase (the solve or skip phase), you're going to go back through and use a combination of the strategies you'll learn below to answer the questions you marked in phase 1.
- ▶ The third phase (the guess and check phase) is all about taking a guess on the questions you still haven't figured out, and checking the answers you already put down.

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- ▶ This approach works for a variety of reasons. One is that when you skip the hard questions at first, your brain “works” on them in the background while you do the easier ones.
- ▶ Another reason is that many students suffer from the jitters when they first get into the test. Anxiety and stress levels can spike quickly, and working on the test questions in cycles like this helps you get the nerves out of your system. As you get settled in, you’ll have a better chance at getting the harder questions right than if you try to do them right away.

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Let us now look at each phase in more detail!

Phase 1: How to Approach Multiple Choice questions

- ▶ Read each question, and then think about the answer before you go to the choices
- ▶ For the first phase, you'll just go through each question. See if you can think of about what the answer should be in your head after reading each question, but before looking at the answers.

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- ▶ It's important to clarify what the question is asking before you try to answer it. This may sound like common sense, but you'd be surprised by how many times students lose points because they pick an answer that's factually correct, but doesn't actually answer the question!
- ▶ We're now going to look at an example:

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Although you can probably figure it out just from your common knowledge, I encourage you to focus on understanding the strategy behind the question, and not on the question's content!

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Example:

Which of the following drinks is most likely to keep you up at night?

- A. Water, because it hydrates you
- B. Pepsi, because it comes in multiple flavors
- C. Milk, because it builds strong bones
- D. Pepsi, because it has caffeine

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In this question, all of the answer choices contain true information. However, factually true answer choices don't always answer the question! D is the best choice here.

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Read carefully for absolutes

Absolutes are words such as never, all, none, always, and must.

- ▶ Be skeptical of answer choices that contain these absolutes, especially when all of the answer choices except for one have them! There's usually a good chance that the lone answer without an absolute in it is the correct answer choice.

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- ▶ In most school subjects, it's rare for there to be no exceptions, which words like all, never, etc.. rule out! Be aware that sometimes an answer choice with an absolute will be the correct answer choice, but it's worth taking a second to pause and think critically when these words come up!

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Watch out for negatives

- ▶ For example, you may get a question that asks “which one of the following is not correct?”
- ▶ circling the word not and similar words so that you don't get confused

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- ▶ Along these same lines, watch out for questions that ask : “which one of the following is false,” or “all of the above are true except ____.” It may be helpful to circle the words false and except so that you’re aware of how they change the meaning of the question.
- ▶ Note that if a sentence has a negative followed by another negative, the meaning of the sentence is the same as it would be without the negatives!

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What about switchback words?

- ▶ Switchback words include like, but, although, and while. These words also switch the original meaning of the sentence. Don't get tripped up by them!
- ▶ Whenever you get a question with absolutes, negatives, or switchback words, stop and read the question twice! You should also mark the question before moving on to come back and check it quick at the end.

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- ▶ At first, it is best to try to answer a multiple choice question in your own head, rather than relying on the choices
- ▶ After you've read the question carefully and noted anything special in the wording, go ahead and try to brainstorm the answer in your head before you check the answers

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- ▶ Now, obviously if you get something like “which one of the following is false,” this strategy won’t apply, so you can skip this step in those cases! After you brainstorm your own answer, check and see if your answer matches any of the actual answers. If it does, then that answer is probably correct!
- ▶ However, you’ll still want to make sure you can eliminate each other answer choice before moving on!

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How to Use Process of Elimination

- ▶ crossing the entire answer out when you eliminate it rather than just crossing out the letter in front of it (if you're allowed to write on the test)!
- ▶ The key rule is that if you can make an argument for why an answer is wrong, cross it out! NEVER eliminate an answer just because it doesn't seem right!
- ▶ On tests, you never want to rely on your intuition unless all else has failed!

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- ▶ Take the time and mentally explain to yourself why the answer is incorrect quickly before you eliminate it. Perhaps even jot down a few words about why each answer is wrong before moving on, just because it makes it easier to confirm for yourself that you're making the right choice.

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Mark Reservoir Questions



TIP

WATCH FOR RESERVOIR QUESTIONS

Reservoir questions are questions that contain information you can use to answer other test questions.

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Multiple Choice reservoir questions explained

- ▶ Reservoir questions are questions that contain information you can use to answer other test questions. Questions with answer choices like all of the above or which of the following is false can be great sources of information!
- ▶ The reason why these questions called reservoir questions is because they give you a short list of factual statements that you may be able to use to figure out other questions you aren't sure of!

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- ▶ If you're sure at least two of the answers are correct for all of the above questions, you can just pick all of the above!
- ▶ This is especially helpful when you're given a question with 5 answer choices, and you're sure 2 of them are correct, but are unsure of what the other answer choices mean.
- ▶ Since you know they're all true just because you correctly recognized two of the answers, you can use these answers to help you on questions you aren't sure of!

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- ▶ Now, you won't always be able to do this, but still, sometimes this information will trigger something in your memory that you can use to get other answers correct!

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Phase 1 Summary:

- ▶ Read each question carefully before you go to the answers.
- ▶ Next, try to think of about what the answer should be in your head if applicable.
- ▶ For questions with absolutes, negatives, or switchback words, read extra carefully and mark the questions to double check them at the end.
- ▶ If your answer is close to one of the actual answer choices, make sure you can eliminate the others, and then stick with that choice!

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- ▶ Be on the lookout for any questions that are about similar topics, and mark them. You may be able to use these questions as “reservoirs” to figure out other questions!
- ▶ Whenever you get to a question that you can’t answer within about a minute, mark the question, move on, and come back to it!

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Phase 2: How to use Multiple Choice Strategies

- ▶ You will now cycle back through all of the questions you marked from phase 1. You should be fairly confident at this point that all of the answers you've put down are correct.
- ▶ It's now time to employ a few strategies to ensure you don't leave any points on the table for the questions you have left! Remember, the answer to each question is on the page, you just have to identify it!

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Strategy 1: Recycle information from “reservoir” questions

- ▶ Ask yourself if there’s any information in the other questions that can help you. If you followed the method in phase 1, you’ll have already done this!
- ▶ Sometimes professors/instructors/teachers leave info in questions that can be used to answer other questions on the test. This almost always happens by accident.
- ▶ Everyone has their blind spots, so sometimes even proofreading a test multiple times doesn’t make this obvious.

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- ▶ Even if your professor/instructor/teacher hasn't left any blatant info on the pages, you can almost always find enough info to get a hint or two.
- ▶ Remember, all of the above questions are valuable questions to look at for this!

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Strategy 2: Look for two answers that are similar

- ▶ If you ever get a question where two answer choices are very similar to each other, but not to any of the other answers, chances are one of the two is correct!
- ▶ Often this will happen with answer choices that contain conflicting information.

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- ▶ Also, watch for answer choices that contain synonymous (two words that mean the same thing). If the answers both mean basically the same thing, then they can't both be right!

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Strategy 3: Pick the longest and most precise answer

- ▶ Did you know that longer answers are correct more often than shorter answers? This is even more true on average when an answer is not only longer than the others, but also more precise

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- ▶ This is true because test writers often need to add more words to make sure an answer is objectively correct and without room for ambiguity. For wrong answers, they're less likely to be as precise.
- ▶ This knowledge is especially helpful when you've eliminated the answer choices down to 50/50. Look at the longest and most precise answer and consider very carefully if it's correct!

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Strategy 4: Pick a benchmark answer to compare the others

too:

- ▶ Sometimes more than one answer will have some truth to it. For questions in which multiple questions seem plausible, you'll want to go with the answer that is the most plausible!

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- ▶ A good way to do this is to make one plausible answer a benchmark answer, and then compare this answer to the others until you find an answer that seems more plausible, which then becomes the new benchmark.
- ▶ For example, let's say answer A seems plausible. You compare it to B, but B doesn't seem as plausible. Comparing A to C, it turns out that C is more plausible. Therefore, you can eliminate A.

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- ▶ Consequentially, C becomes the new benchmark. You now just have to compare the remaining answers to C, and if neither are as plausible, C is your answer!
- ▶ The key here is to try to make a logical argument that each answer is more plausible than the benchmark, and if you can't, pick the benchmark as your answer! If you can, then eliminate and select a new benchmark!

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Strategy 5: Counting

- ▶ This strategy is only applicable in certain cases. However, it's one of the most reliable methods for getting the answer correct! It's best illustrated with an example.

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Example:

- ▶ The earliest evidence of lemonade was found in which country during which year?
- ▶ A. Egypt, 2000 AD
- ▶ B. India, 2250 AD
- ▶ C. Egypt, 1000 AD
- ▶ D. USA, 1000 AD

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The strategy here is to count up the number of times each country shows up in answer choices:

- ▶ Egypt → 2 (A and C)
- ▶ India → 1 (B)
- ▶ USA → 1 (D)

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We then do the same thing for the years:

- ▶ 2000 AD → 1 (A)
- ▶ 2250 AD → 1 (B)
- ▶ 1000 AD → 2 (C and D)

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- ▶ In conclusion, we know choice C correct. This is because Egypt and 1000 AD show up the most in answer choices.
- ▶ Let's look at one more example of this technique before we move on.

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Example:

- ▶ Which answer choice includes only drinks with caffeine?
- ▶ A. Orange juice, coffee, milk, Pepsi
- ▶ B. Coffee, cider, pepsi, tea,
- ▶ C. Mountain Dew, pepsi, coffee, apple juice
- ▶ D. Pepsi, Coffee, Mountain Dew, tea

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The strategy here is to first take stock of how many times each drink appears:

- ▶ Orange juice → 1
- ▶ Apple juice → 1
- ▶ Coffee → 4
- ▶ Pepsi → 4

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- ▶ Mountain dew → 2
- ▶ Cider → 1
- ▶ Milk → 2
- ▶ Tea → 2

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Now, we add up these values based on the drinks in each answer choice:

- ▶ A. Orange juice, coffee, milk, Pepsi $\rightarrow 1 + 4 + 2 + 4 = 11$
- ▶ B. Coffee, cider, Pepsi, tea $\rightarrow 4 + 1 + 4 + 2 = 11$
- ▶ C. Mountain Dew, Pepsi, coffee, apple juice $\rightarrow 2 + 4 + 4 + 1 = 11$
- ▶ D. Pepsi, Coffee, Mountain Dew, tea $\rightarrow 4 + 4 + 2 + 2 = 12$

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- ▶ Since the total value we got for D is the largest, it's safe to conclude D is the correct answer.
- ▶ Both examples are slightly different, but both illustrate how the same basic counting strategy can be applied! Don't be afraid to actually write out the numbers on your test if it helps you!
- ▶ Again, you could probably answer this one based on common knowledge, but the important thing is to understand the strategy so you can apply it to harder questions!

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Strategy 6: The Cornell Method For Qualifiers (source)

- ▶ According to basic grammar rules, a qualifier is a word that qualifies or modifies the meaning of another word. Qualifiers are typically adjectives or adverbs, but not always.

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To use the method, it's best to be familiar with this list of qualifier families:

- ▶ All, most, some, none (no)
- ▶ Always, usually, sometimes, never
- ▶ Great, much, little, no
- ▶ More, equal, less
- ▶ Good, bad
- ▶ Is, is not

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- ▶ Whenever you see one of these words in an answer, consider the qualifiers from the same family. Replace the qualifier in the question with each one. If another qualifier from the same family fits better, as a result, the answer can be ruled out !

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Example:

- ▶ Is the following statement true or false?
- ▶ Statement: Students are always unable to sleep after drinking caffeine late at night
- ▶ The strategy here is to replace the word always with each of the other qualifiers in the same family to look for a better fit:

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Students are always unable to sleep after drinking caffeine late at night

- ▶ “” usually unable to sleep after drinking caffeine late at night
- ▶ “” sometimes unable to sleep after drinking caffeine late at night
- ▶ “” never unable to sleep after drinking caffeine late at night

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- ▶ See how changing the qualifier dramatically changes the meaning of the statement?
- ▶ The best answer seems to be the second choice, but the third choice is also plausible. The first and last choices with the words always and never aren't plausible answers; some students have no trouble falling asleep after drinking caffeine. Others avoid caffeine purposely after a certain hour because it keeps them up.

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- ▶ Memorizing the qualifiers may not be worthwhile for everyone. This is due to the high volume of material you have to know already. Hopefully though you can at least see the logic behind this method, and how it can be helpful!
- ▶ Please note that all of these strategies are covered in-depth along with many others in the Master Multiple Choice Tests course!

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Phase 3:

- ▶ Okay, so you went through the questions once and answered everything you could. Then you went through them again and applied the strategies discussed above to answer as many as you could.

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What's left?

- ▶ At this point, you probably won't have that much time left, but that's okay! It's now time to put your best guess down for any unanswered questions. Consequently, go with your gut!
- ▶ The key rule is this: logic first, gut second. You've already tried to reason your way through these questions. Since you've still been unsuccessful, as a result, go with your best guess!

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- ▶ You don't have to get them all right to get an A. You just have to get most of them right!
- ▶ In conclusion, the third phase is when you'll answer the remaining questions. Also, you will also review the other questions with the time remaining.

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Should you always stick with your first choice on multiple choice exams?

TIP

**SHOULD YOU ALWAYS
STICK WITH YOUR
FIRST ANSWER?**



"Most answer changes are from incorrect to correct, and people who change their answers usually improve their test scores."

-Quote from *Counterfactual Thinking and the First Instinct Fallacy*

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Multiple choice - Counterfactual thinking and the first instinct fallacy

- ▶ It seems like most students have heard millions of times that you should always stick with your first choice.
- ▶ The main reason this seems like good advice is because it prevents you from second guessing yourself.

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- ▶ For example, let's say you're taking a 50 problem test, you have 5 minutes left, and need to check all of your answers. It's easy to work yourself into a frenzy as you review your test under a strict time limit. As a result, you may get the urge to start changing answers out of panic!

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- ▶ Again, logic first, everything else second! Hence, making crucial decisions based on your emotions during crunch time is not a great strategy.
- ▶ Examine the answer choice you first picked, and examine the answer choice you think may be correct instead. Now, make an argument for why each answer is correct individually.

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- ▶ Write out your thoughts on the paper, or do it in your head – whatever works! Go with the answer that you can make the strongest argument for!
- ▶ Most noteworthy, there's actually a fairly large body of evidence that going with your first guess isn't best. Yet, this myth is still pervasive.
- ▶ In a collaborative research paper written by researchers at the University of Illinois and Stanford University titled Counterfactual Thinking and the First Instinct Fallacy, the investigators said this:

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- ▶ Most people believe that they should avoid changing their answer when taking multiple-choice tests. Virtually all research on this topic, however, suggests that this strategy is ill-founded: most answer changes are from incorrect to correct, and people who change their answers usually improve their test scores.
- ▶ Another study that examined the accuracy of students' second guesses vs first guesses said this:

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- ▶ More often than not, the students' revisions – changes from a first instinct to a new choice – resulted in a correct answer. And on questions that caused the most uncertainty, sticking with an initial response was a bad idea: they were wrong more than half the time (source).

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Why “go with your gut” can be bad advice

Slow Thinking System 2

- Effortful thinking
- Directs attention
- Problem solving
- Decision making



Fast Thinking System 1

- Effortless thinking
- Automatic
- Not voluntary
- Sends impressions and feelings to system 2

Decision Making



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- ▶ Have you ever had a gut feeling about an answer just from reading the answer choices? Even though you weren't sure exactly why it was right?
- ▶ Daniel Kahneman proposes an intriguing theory in Thinking Fast and Slow. Kahneman is a Nobel Prize winner. He states that the brain uses two different systems for processing information. We can call system 1 and system 2.

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Decision making on multiple choice texts

- ▶ System 1 operates automatically by creating impressions, intuitions, and gut feelings for system 2. System 2 acts on the input from system 1, and handles your conscious reasoning and decision making.

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- ▶ We can think of system 1 as the fast system, and system 2 as the slow system. Essentially what's happening in these situations is that your brain unconsciously picks something up from the answer choice. This happens before you're consciously aware of it, because your fast thinking system 1 produces the intuition feeling.

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- ▶ The problem is that these intuitions aren't always correct! Sometimes professors/instructors/teachers will include questions with a twist, and relying on your intuition for them will lead you astray!
- ▶ You must stop and use your slow thinking system! Make what's unconscious /conscious by reasoning it out. Your gut instinct may in fact be right, but it's worth taking the extra time to check!

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- ▶ As I said above, the one exception is when you're completely stumped and have no idea what the correct answer is. In these cases, by all means, go with your gut!

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What's next?

- ▶ This brings us to the end of the guide!

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Thank you for your Attention !
: Yoftahe Assegid
: Educational counselor