

CRITICAL REASONING

Each critical reasoning question contains 3 separate parts

- a) the stimulus
- b) the question part
- c) the 5 answer choices

GMAT stimulus falls into 2 distinct categories

- a) Those containing an argument – Set of statements wherein one statement is claimed to follow or derived from the other. Premise & Conclusion. A conclusion is must for an argument
- b) Those containing a set of facts – Collection of statements without a conclusion, or relationship between the statements

Argument	Set of Facts
Presence of conclusion	Absence of conclusion

Argument

- a) Premise - a fact, proposition, or statement from which a conclusion is made
- b) Conclusion – a statement of judgement that follows from one or main reasons

Premise Indicators		Conclusion Indicators	
For	Because, since, for	Hence	Hence, thus, therefore
For	For, for example, for the reason that, for the simple reason that	So	So, accordingly, clearly, consequently
To	Due to, Owing to	Conclude	Conclude that, must be that, shows that, follows that
That	In that, given that, for the reason that	Result, reason	As a result, for this reason
As	As indicated by, this can be seen from, we know this by		

Additional premise – Author will make an argument & then for good measure add another premise that supports the conclusion but is some-times non-essential to the conclusion. These are known as additional premises

Counter-premise – For creating an argument, an author will sometime bring up a counter-premise. But by raising a counter-premise and then addressing the complaint in a direct fashion, the author can minimize the damage that would be done by the objection if it were raised elsewhere.

Additional Premise	Counter-premise
Furthermore, moreover, what's more	Admittedly, but, yet, still
Besides, In addition	However, whereas, although, even though
	After all, despite, in-spite of, in contrast, on the other hand

Understanding Concepts

1. Truth vs Validity – When evaluation GMAT arguments, we are primarily concerned with validity. Reasonableness or soundness of an argument is important; not the real world truthfulness of premises
 - a. No attention to whether the premise is true or not should be given
2. Inference vs assumption

Both are Must be True types

 - a. Inference – Item that must be true, Find an item that must be true based on the information presented in the argument
 - b. Assumption – An assumption is simply the same as an unstated premise – what must be true in order for the argument to be true
3. MOST/LEAST/EXCEPT

In questions with words like most, least – There is no relativity concept, degree of influence.

 - a. Most – Only one answer choice will meet the criteria.
Most weakens – Only one answer choice will weaken,
 - b. Least/except – Other than, both have same meaning
Except – Each of the following weakens the argument except – Four answer choices weakens the argument and the one correct answer does not weaken the argument.
Least – Only one answer choice will meet the criteria
Which of the following, if true, helps LEAST to resolve the apparent discrepancy described above? – One correct answer – does not resolve the paradox
4. Common Question pattern

Raising 2 opposing views.

 - a) Some/Many people claim/propose/believe/.. – Structure is consistent with
A number (some, many, etc) of people (critics, teachers, etc) believe (claim, propose, argue, etc) that
 - b) Introducing opposing views

Inference	Assumption
Follows from an argument – in other words a conclusion	It is taken for granted while making an argument

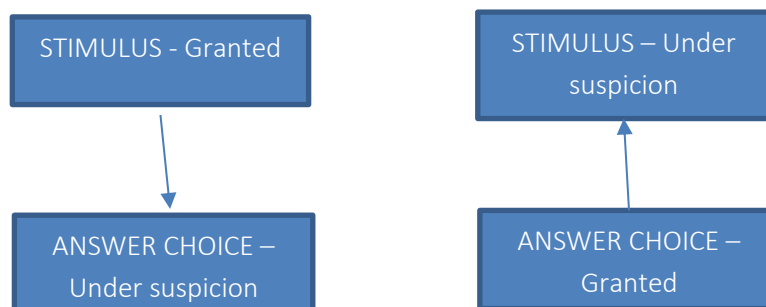
Quality Indicators	Quantity Indicators
All, not all, every, most, many	Must, always, not always
Some, several, few	Will, probably, likely, would, could
Sole, only, not all, none	Rarely, never, not necessarily

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Question Stem

2 Main Types

	Prove	Help
	Stimulus granted, answer choice under suspicion	Stimulus under suspicion, answer choice granted
Salient points	Accept the stimulus, even if it contains an error of reasoning	Information in the stimulus is suspect. Reasoning errors are present
Salient points	No New Information - Any answer choice with new information should be rejected	New Information – Answer choices are accepted as given even if they include ‘new’ information
Types of Question	<ol style="list-style-type: none"> 1. Must be true, most supported, inferred 2. Main point 3. Method of reasoning 4. Flaw in reasoning 5. Parallel reasoning 	<ol style="list-style-type: none"> 1. Assumption 2. Strengthen/support 3. Resolve the paradox



2 other types

Hurt	
Weaken the argument	Evaluate the argument
Same characteristics as Help	-

Salient points on Question types

1. Must be true & Resolve the paradox questions are generally connected to stimuli that don't have conclusions.
Stimuli which don't have conclusions → possibility of 2 type of questions a) must be true b) resolve the paradox
2. Method of reasoning & Parallel reasoning → Strong “must be true” element

Uniqueness rule of Answer Choices

The correct answer must meet the uniqueness rule, which states that “Every correct answer has a unique logical quality that meets the criteria in the question stem”

Prephrasing

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After reading the stimuli & the question stem, take a moment to mentally formulate your answer to the question stem

1. Must be True / Most Supported / Inferred

Must be True question require you to select an answer choice that is proven by the information presented in the stimulus. The question format can be reduced to 'What did you read in the stimulus, and what do you know on the basis of that reading?'

The correct answer to a Must be True question can always be proven by referring to the facts stated in the stimulus.

Correct answer types

- A) Paraphrased answers are answers that restate a portion of the stimuli in different terms. When these answers mirror the stimulus, they are correct
- B) Combination answers result from combining 2 or more statements in the stimulus

2. Main Point- Main Conclusion

2 types of answers typically appear in Main point questions. Both are incorrect

- 1. Answers that are true but do not encapsulate the author's point
- 2. Answers that repeat premises of the argument

Each answer type is attractive because they are true based on what you have read. However, neither summarizes the author's main point and therefore both are incorrect.

3. Weaken Question- Attack the conclusion

Keep the following rules in mind

- 1. The stimulus will contain an argument. Because you are asked to weaken the author's reasoning, and reasoning requires a conclusion, an argument will always be present. In order to maximize your chances of success you must identify, isolate and assess the premises and the conclusion of the argument. Only by understanding the structure of the argument can you gain the perspective necessary to attack the author's position
- 2. Focus on the conclusion. Almost all correct weaken answer choices impact the conclusion. The more you know about the specifics of the conclusion, the better armed you will be to differentiate between answer and incorrect answers.
- 3. The information in the stimulus is suspect. There are often reasoning errors present, and you must read the argument very carefully.
- 4. Weaken questions often yield strong prephrases. Be sure to actively consider the range of possible answers before proceeding to the answer choices.
- 5. The answer choices are accepted as given, even if they include "new" information. Unlike Must be True questions, Weaken answer choices can bring into consideration information outside or tangential to the stimuli.

Stem uses the word "weaken" or a synonym

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- a) Weaken
- b) Attack
- c) Undermine
- d) Refute
- e) Argue against
- f) Call into question
- g) Cast doubt
- h) Challenge
- i) Damage
- j) Counter

Key to weaken a GMAT argument is to Attack the conclusion. -- Focus on the conclusion and how the author arrived at the conclusion. Missing links between premise – assumptions taken for granted to derive the conclusion.

As arguments are made up of premises and conclusions, you can safely assume that these are the parts you must attack in order to weaken an argument.

- a) The premises – one of the classic ways to attack an argument is to attack the premises on which the conclusion rests. In practice, all correct GMAT weaken questions leave the premises untouched. The one time an answer choice attack a premise is when that “premise” is a sub-conclusion.
- b) The conclusion – conclusion is the part of the argument that is most likely to be attacked, but the correct answer will not simply contradict the conclusion. Instead the correct answer often shows that the conclusion fails to account for some element or possibility. In this sense, the correct answer often shows that the conclusion does not necessarily follow from the premises even if premises are true.

Common weakening Scenarios

- a) Incomplete information – The author fails to consider all of the possibilities, or relies upon evidence that is incomplete. This flaw can be attacked by bringing up new possibilities or information
- b) Improper comparison – The author attempts to compare 2 or more items that are essentially different.
- c) Qualified conclusion – The author qualifies or limits the conclusion in such a way as to leave the argument open to attack

4. Cause and Effect Reasoning

How to Recognize Causality

By	Caused by, determined by, induced by, produced by, promoted by
For	Responsible for, reason for
To	Leads to
Of	Is an effect of, because of, product of
In	Was a factor in, played a role in

Causality in the conclusion versus causality in the premises

Casual statement can be found in conclusion or premises of an argument. If the casual statement is in the conclusion, then the reasoning is flawed. If in premise, then the argument may be flawed. One of the critical issues in determining whether flawed causal reasoning is present is identifying wherein the argument the casual assertion is made.

EX causality in conclusion – Flawed

Premise – In NA, people drink a lot of milk. There is high frequency of cancer in NA.

Conclusion – Therefore **drinking milk causes cancer**

EX causality in premise – Considered valid

Premise – Drinking **milk cause cancer**

Premise – The residents of North America drink a lot of milk

Conclusion – Therefore, in North America there is high frequency of cancer among the residents

GMAT tend to allow premises to go unchallenged, they are more concerned with the reasoning that follows a premise.

Situations that can lead to Errors of Casuality

1. One event occurs before another – when this happens, people assume that 1st event caused 2nd event
2. 2 or more events occur at the same time – when this happens, people assume that one event caused the other

Central Assumption of Casual Conclusion

When the GMAT speaker concludes that one occurrence caused another, that speaker also assumes that the stated cause is the

- a) Only possible cause of the effect
- b) The stated cause will always produce the same effect

Ex- Average temperatures are higher at the equator than in any other area. Individuals living at or near the equator tend to have lower per-capita incomes than individuals living elsewhere. Conclusion – Therefore higher average temperatures cause lower per-capita incomes.

Flawed argument because it is not necessary that one of the elements caused the other to occur; the 2 would simply be correlated in some way or the connection could be random.

In real world, we can think that there are other things that could cause the lower per capita income of the individuals residing at or near the equator. This is not how speakers on the GMAT view the relationship. When a GMAT speaker makes an argument like the one above, he or she believes **that the only cause is the one stated in the conclusion and that there are no other causes that can create that particular effect.**

Every argument with a casual conclusion that appears on the GMAT, the speaker believes that the stated cause is in fact the only cause and all other theoretically possible causes are not, in fact, actual causes.

HOW TO ATTACK a Casual Conclusion

- a) Find an alternate cause for the stated effect
- b) Show that even when the cause occurs, the effect does not occur
- c) Show that although the effect occurs, the cause did not occur
- d) Stated relationship is reversed
- e) Statistical problem exists with the data used to make the casual statement

5. Strength Question Type Review – Strengthen conclusion

Use the following points to effectively strengthen arguments

1. Identify the conclusion – this is what you are trying to strengthen
2. Personalize the argument
3. Look for weakness or hole in the argument

In strengthen questions, supporting a cause and effect relationship

1. Eliminate any alternate cause
2. Show that when cause occurs, the effect occurs
3. Show that when effect occurs, the cause occurs
4. Eliminate any possibility when stated relationship reverse
5. Eliminate any discrepancy in statistical data, which is used to make the casual statement

6. Assumption Question Type

An assumption is a simply unstated premise of the argument; that is, an integrated component of the argument that the author takes for granted and leaves unsaid.

The answer you select as correct must contain a statement that the author relies upon and is fully committed to in the argument.

On the GMAT, assumptions play 2 roles

- i) Supporter Assumption – These assumptions link together new or rogue elements in the stimulus or fill logical gaps in the argument

- ii) Defender Assumption – These assumptions contain statements that eliminate ideas or assertions that would undermine the conclusion. In this sense, they ‘defend’ the argument by showing that a possible avenue of attack has been eliminated.

Question: People who read a lot are more intelligent than other people.

Thus, reading must cause a person to be intelligent

Assumption: Sleeping more than 8 hours does not cause a person to be intelligent. Removal of alternate cause.

Assumption Negation Technique – Transform to Weaken Question, Negate answer

1. Logically negate the answer choices under the consideration
2. The negated answer choice that attacks the argument will be the correct answer. If the question type is weaken & the negated answer choice satisfies it, then it is fine

Negating a statement consists of creating the logical opposite of the statement. The logical opposite is the statement that denies the truth of the original statement, and the logical opposite is different from the polar opposite.

A logical opposite will always completely divide the subject

Always	Not always
Everywhere	Not everywhere
Sometimes	Never
Somewhere	Nowhere
All (100)	Not all (0 to 99)
Some (1 to 100)	None (0)

Assumption answer choices tend to work exactly like the Strengthen answer choices in arguments with casual reasoning

- a) Eliminate an alternate cause for the stated effect
- b) Show that when cause occurs, effect occurs
- c) Show that when effect occurs, cause occurs
- d) Eliminate any possibility of stated relationship reversal
- e) Show that the data used to make the casual statement are accurate, or eliminate any discrepancy due to statistics in data

Fill in the blank questions

- i) Almost always Assumption questions in disguise
- ii) No assumption questions – they are Must be true/ Main point questions

Premise Indicators followed by blank	Assumptions questions
Conclusion indicators followed by blank	Main point / Must be true

3 Quirks of assumption answer questions

- i) Answers starting with the phrase **“at least one”** or **“at least some”**– For some reason answer starting with the phrases- the chances are usually high that the answer will be correct
- ii) Avoid answer that claim an idea was the most important consideration for the author – **‘the primary purpose’** , **‘the top priority’** , **‘the main factor’** – in every assumption questions these answers have been wrong
- iii) Watch for the use of **“not”** or negatives in assumption answer choices. Don’t rule out a negative answer choice just because of the presence of negative terms.

7. **Resolve the paradox – Active resolution (possible cause)**

1. Identify the question stem by the word **“explain”** or **“resolve”**

Key words that indicate your task is to resolve a problem

Action	Problem
Resolve	Paradox
Explain	Discrepancy
Reconcile	Contradiction
	Conflict
	Puzzle

On the GMAT, the word **“explain”** is used more frequently than any other word to indicate the presence of a resolve question

Resolve the paradox stimuli presents a situation where 2 ideas or occurrences contradict each other. Most resolve the paradox stimuli contain the following features

1. No conclusion
 2. Language of contradiction
2. Active Resolution – because you are not seeking to disprove one side of the situation, you must select the answer choice that contains a possible cause of the situation.
Most students seek an answer that destroys or disproves on side of the situation. They follow the reasoning that if one side can be proven false, then the paradox will be eliminated. While this is

true, the test makers know that such answer would be obvious and thus this type of answer doesn't appear in the answer.

8. Method of Reasoning & Flaw in the reasoning Questions – Prephrasing

If an answer choice describes an event that did not occur in the stimulus, then the answer is in-correct. All parts of the answer must be identifiable in the stimulus.

Method of Reasoning questions – Abstract Must be true questions

1. You can use only the information in the stimulus to prove the correct answer choice
2. Any answer choice that describes an element or a situation that does not occur in the stimuli is incorrect
The stimulus can contain valid or flawed reasoning.

Method of reasoning question stems use a variety of formats – the stem refers to the method, technique, strategy, or process

- a) “The method of the argument is to”
- b) “The argument proceeds by”
- c) “The argument derives its conclusion by’
- d) “Which of the following describes the techniques of reasoning used above”
- e) “Which of the following is an argumentative strategy employed in the argument”
- f) “The argument employs which one of the following reasoning techniques”

Flaw in the Reasoning questions – Phrases such as “the reasoning is flawed” and “the argument is vulnerable”

- a) “Which of the following most accurately describes a flaw in the argument’s reasoning
- b) “The reasoning in the argument is most vulnerable to criticism on the grounds that the argument”
- c) “The reasoning above is flawed because it fails to recognize that”
- d) “A questionable aspect of the reasoning above is that it”

Method of Reasoning – Bolded Argument Part Questions – Meticulously read

One trick used by the test-makers in Method-AP questions is to create Wrong answers that describe part of the argument other than the part named in the Question Stem

9. Parallel Reasoning – Abstract

- i. Identify questions - reasoning

- a) "Which one of the following is most closely parallel in its reasoning to the reasoning in the argument above?"
- b) "Which one of the following exhibits a pattern of reasoning most similar to that exhibited by the argument above?"
- c) "Which one of the following arguments is most similar in its pattern of reasoning to the argument above?"
- d) "The structure of the reasoning in the argument above is most parallel to that in which one of the following?"

Steps to Must parallel all of these elements

1. Match the method of reasoning (match a) Casual reasoning
b) conditional reasoning c) analogy etc if there in stimulus to presence in answer)
2. Match the conclusion
 - i) **Identical wording to the conclusion**
Match the certainty level or intent of the conclusion to the premise – Containing absolutes like "must, always, never, should, many, etcetera" will be matched with the same idea in the correct answer choice
 - ii) **Synonyms available for the test makers**
Majority in conclusion of the stimuli – find synonyms like – "Most", "More than half" Functionally identical
 - iii) **Natural opposites allowed – Presence of a negative term in the stimulus is not grounds for dismissing the answer when the stimulus has positive language**
X must be present → same as → X must not be absent
If the stimulus has a positive conclusion, then the presence of negative terms in the conclusion is not grounds for eliminating the answer; similar for negative answer
3. Match the premise
Same strategy as above
4. Match the validity of the argument (if valid reasoning in stimuli, then same in answer)

Abstraction: If all fails – create a short statement summarizes the action in the argument. Then, **take the abstraction and compare it to each argument. Form the stimuli like – A causes B, If A happens than B will happen.**

10. Number, Percentages

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Words to introduce numerical ideas	Words to introduce percentage ideas
Amount	Percent
Quantity	Proportion
Sum	Fraction
Total	Ratio
Count	Incidence
Tally	Likelihood
	Probability
	Segment
	Share

Incidence, Likelihood & probability – Each of these words relates to the chances that an event will occur, and when the GMAT makers use the phrases such as “more likely” or “less likely” – percentage chances are greater than 50% or less than 50% respectively.

Percentages

Numerical situations normally hinge on 3 elements: an overall total, a number within that total, and a percentage within the total. But without information with at least 2 elements present, you cannot make a definitive judgement about what is occurring with another element

Market & Market Share

Market share is a comparative term, as opposed to an absolute term

1. Market share is the portion of a market that a company controls.
The market share can be measured either in terms of revenues (sales) or units sold.
A company can gain market share (%) if the market shrinks and they maintain a constant size, or if they grow in an unchanging market.
2. Total market share must always add up to 100%

Average

Average is a composite number, and within the average there can be a significant degree of variation and no single entity need embody the same characteristics of the average

11. Evaluate the argument - Variance Test (answer the question by two extremes – should affect the conclusion)

1. Evaluate the argument questions ask you to consider the question, statistics, or piece of information that would best help determine the logical validity of the argument presented in the stimulus.
2. Evaluate the argument question stems almost always use the word “evaluate” or a synonym such as “judge” or “assess”.

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3. **Variance TEST** – supply 2 opposite responses to the question, then analyse how the varying responses affect the conclusion in the stimulus. If different responses produce different effects on the conclusion, the answer choice is correct.

Question: What is the % of people who live near a nuclear plant?

2 extreme responsibilities – first test the response: 0% & than 100%.

If one weakens and other strengthens – than the question is right – answer choice is right.

4. Evaluate the argument belongs to 2nd (Help) & 3rd (Hurt)
 - i) Information in the stimulus is suspect
 - ii) Answer choices are accepted as given, even if they include “new information”.