Chapter Seven: Cause and Effect Reasoning

What is Causality?

When examining events, people naturally seek to explain why things happened. This search often results in cause and effect reasoning, which asserts or denies that one thing causes another, or that one thing is caused by another. On the GMAT, cause and effect reasoning appears in many Critical Reasoning problems, often in the conclusion where the author mistakenly claims that one event causes another. For example:

> Last week Apple announced a quarterly deficit and the stock market dropped 10 points. Thus, Apple's announcement must have caused the drop.

Like the above conclusion, most causal conclusions are flawed because there can be alternate explanations for the stated relationship: another cause could account for the effect; a third event could have caused both the stated cause and effect; the situation may in fact be reversed; the events may be related but not causally; or the entire occurrence could be the result of chance.

In short, causality occurs when one event is said to make another occur. The *cause* is the event that makes the other occur; the *effect* is the event that follows from the cause. By definition, the cause must occur before the effect, and the cause is the "activator" or "ignitor" in the relationship. The effect always happens at some point in time after the cause.

How to Recognize Causality

A cause and effect relationship has a signature characteristic—the cause *makes* the effect happen. Thus, there is an identifiable type of expression used to indicate that a causal relationship is present. The list on the following page contains a number of the phrases used by the makers of the GMAT to introduce causality, and you should be on the lookout for those when reading Critical Reasoning stimuli.

Causality is the most-tested logical concept in GMAT Critical Reasoning stimuli. The second most tested concept is Numbers and Percentages, which will be addressed in Chapter Twelve.

As mentioned before, this is a book about GMAT logic, not general philosophy. Therefore, we will not go into an analysis of David Hume's Inquiry or Mill's Methods (both of which address causality) because although those discussions are interesting, they do not apply to the GMAT.

The following terms often introduce a cause and effect relationship:

caused by
because of
responsible for
reason for
leads to
induced by
promoted by
determined by
produced by
product of
played a role in
was a factor in
is an effect of

Because of the variety of the English language, there are many alternate phrases that can introduce causality. However, those phrases would all have the similar characteristic of suggesting that one event *made* another occur.

Causality in the Conclusion versus Causality in the Premises

Causal statements can be found in the premise or conclusion of an argument. If the causal statement is the conclusion, then the reasoning is flawed. If the causal statement is the premise, then the argument may be flawed, but not because of the causal statement. Because of this difference, one of the critical issues in determining whether flawed causal reasoning is present is identifying where in the argument the causal assertion is made. The classic mistaken cause and effect reasoning we will refer to throughout this book occurs when a causal assertion is made in the *conclusion*, or the conclusion presumes a causal relationship. Let us examine the difference between an argument with a causal premise and one with a causal conclusion.

In the GMAT world, when a cause and effect statement appears as the conclusion, the conclusion is flawed. In the real world that may not be the case because a preponderance of evidence can be gathered or visual evidence can be used to prove a relationship.

This is an argument with a causal conclusion:

Premise: In North America, people drink a lot of milk.

Premise: There is a high frequency of cancer in North America.

Conclusion: Therefore, drinking milk causes cancer.

In this case, the author takes two events that occur together and concludes that one causes the other. This conclusion is in error for the reasons discussed on the first page of this chapter.

If a causal claim is made in the premises, however, then no *causal* reasoning error exists in the argument (of course, the argument may be flawed in other

ways). As mentioned previously, the makers of the GMAT tend to allow premises to go unchallenged (they are more concerned with the reasoning that follows from a premise) and it is considered acceptable for an author to begin his argument by stating a causal relationship and then continuing from there:

Premise: Drinking milk causes cancer.

Premise: The residents of North America drink a lot of milk.

Conclusion: Therefore, in North America there is a high frequency of cancer among the residents.

The second example is considered valid reasoning because the author takes a causal principle and follows it to its logical conclusion. Generally, causal reasoning occurs in a format similar to the first example, but there are GMAT problems similar to the second example.

Situations That Can Lead to Errors of Causality

There are two scenarios that tend to lead to causal conclusions in Critical Reasoning questions:

1. One event occurs before another

    When one event occurs before another event, many people fall into the trap of assuming that the first event caused the second event. This does not have to be the case, as shown by the following famous example:

        Every morning the rooster crows before the sun rises. Hence, the rooster must cause the sun to rise.

    The example contains a ludicrous conclusion, and shows why it is dangerous to simply assume that the first event must have caused the second event.

2. Two (or more) events occur at the same time

    When two events occur simultaneously, many people assume that one event caused the other. While one event could have caused the other, the two events could be the result of a third event, or the two events could simply be correlated without one causing the other.

    The following example shows how a third event can cause both events:

        The consumption of ice cream has been found to correlate with the murder rate. Therefore, consuming ice cream must cause one to be more likely to commit murder.

If you have taken a logic course, you will recognize the first scenario produces the Post Hoc, Ergo Propter Hoc fallacy.

In the second example, the two events could simply be correlated. A positive correlation is a relationship where the two values move together. A negative correlation is one where the two values move in opposite directions, such as with age and eyesight (the older you get, the worse your eyesight gets).

As you might imagine, the conclusion of the example does not have to be true (yes, go ahead and eat that Ben and Jerry's!), and the two events can be explained as the effects of a single cause: hot weather. When the weather is warmer, ice cream consumption and the murder rate tend to rise (this example is actually true, especially for large cities).

The Central Assumption of Causal Conclusions

Understanding the assumption that is at the heart of a causal conclusion is essential to knowing why certain answers will be correct or incorrect. Most students assume that the GMAT makes basic assumptions that are similar to the real world; this is untrue and is a dangerous mistake to make.

Understanding this assumption is absolutely critical to your GMAT success. The makers of the test will closely examine your knowledge of this idea, especially in Strengthen and Weaken questions.

When we discuss causality in the real world, there is an inherent understanding that a given cause is just one possible cause of the effect, and that there are other causes that could also produce the same effect. This is reasonable because we have the ability to observe a variety of cause and effect scenarios, and experience shows us that different actions can have the same result. The makers of the GMAT do *not* think this way. When a GMAT speaker concludes that one occurrence caused another, that speaker also assumes that the stated cause is the *only* possible cause of the effect and that consequently the stated cause will *always* produce the effect. This assumption is incredibly extreme and far-reaching, and often leads to surprising answer choices that would appear incorrect unless you understand this assumption. Consider the following example:

Premise: Average temperatures are higher at the equator than in any other area.

Premise: 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.

This argument is a classic flawed causal argument wherein two premises with a basic connection (living at the equator) are used as the basis of a conclusion that states that the connection is such that one of the elements actually makes the other occur. The conclusion is flawed because it is not necessary that one of the elements caused the other to occur: the two could simply be correlated in some way or the connection could be random.

In the real world, we would tend to look at an argument like the one above and think that while the conclusion is possible, there are also other things that

could cause the lower per-capita income of individuals residing at or near the equator, such as a lack of natural resources. *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. Why is this the case? Because for a GMAT speaker to come to that conclusion, he or she must have weighed and considered every possible alternative and then rejected each one. Otherwise, why would the speaker draw the given conclusion? In the final analysis, to say that higher average temperatures cause lower per-capita incomes the speaker must also believe that nothing else could be the cause of lower per-capita incomes.

Thus, in every argument with a causal 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. This is an incredibly powerful assumption, and the results of this assumption are most evident in Weaken, Strengthen, and Assumption questions. We will discuss this effect on Strengthen and Assumption questions in a later chapter. Following is a brief analysis of the effect of this assumption on Weaken questions.

Answer choices that otherwise appear irrelevant will suddenly be obviously correct when you understand the central causal assumption.

How to Attack a Causal Conclusion

Whenever you identify a causal relationship in the conclusion of a GMAT problem, immediately prepare to either weaken or strengthen the argument. Attacking a cause and effect relationship in Weaken questions almost always consists of performing one of the following tasks:

Stimuli containing causal arguments are often followed by Weaken, Strengthen, Assumption, or Flaw questions.

A. Find an alternate cause for the stated effect

   Because the author believes there is only one cause, identifying another cause weakens the conclusion.

B. Show that even when the cause occurs, the effect does not occur

   This type of answer often appears in the form of a counterexample. Because the author believes that the cause always produces the effect, any scenario where the cause occurs and the effect does not weaken the conclusion.

C. Show that although the effect occurs, the cause did not occur

   This type of answer often appears in the form of a counterexample. Because the author believes that the effect is always produced by the same cause, any scenario where the effect occurs and the cause does not weaken the conclusion.

D. Show that the stated relationship is reversed

Because the author believes that the cause and effect relationship is correctly stated, showing that the relationship is backwards (the claimed effect is actually the cause of the claimed cause) undermines the conclusion.

E. Show that a statistical problem exists with the data used to make the causal statement

If the data used to make a causal statement are in error, then the validity of the causal claim is in question.

Diagramming Causality

Causal statements can be quickly and easily represented by an arrow diagram, and in this book we use designators ("C" for cause and "E" for effect) above the terms when diagramming. We use these designators to make the meaning of the diagram clear. During the GMAT, however, students should not write out the designators on the scratch paper (they should just use the arrow diagram) because they want to go as fast as possible.

Here is an example of a causal diagram:

Statement: "Smoking causes cancer."

S = smoking
C = cancer

$\underline{C}$　　　　　$\underline{E}$

S ⟶ C

As you diagram a causal statement, you will face a decision about how to represent each element of the relationship. Because writing out the entire condition would be onerous, the best approach is to use a symbol to represent each condition. For example, we have already used "S" to represent the idea of "smoking." The choice of symbol is yours, and different students will choose different representations. For example, to represent a phrase such as "they must have studied for the test," you could choose "Study" or the more efficient "S." Whatever you decide to choose, the symbolization must make sense to you and it must be clear. Regardless of how you choose to diagram an element, once you use a certain representation within a problem, stick with that representation throughout the duration of the question.

Two Cause and Effect Problems Analyzed

Please take a moment to complete the following problem:

1. In the last five years there has been a significant increase in the consumption of red wine. During this same period, there have been several major news reports about the beneficial long-term effects on health that certain antioxidants in red wine can provide. Thus, the increase in red wine consumption can be directly attributed to consumers' recognition of the beneficial effects of antioxidants.

    Which of the following, if true, most seriously undermines the explanation above?

    (A) Sales of other alcoholic beverages have not increased in the last five years.
    (B) On average, people consume about 10 percent more red wine than they did five years ago.
    (C) The health benefits of red wine are usually not noticeable for several years.
    (D) The consumption of grape juice and other antioxidant-rich products has also increased in the last five years.
    (E) Red wine prices have decreased significantly in the last five years, while the prices of other alcoholic beverages have risen steadily.

This is a Weaken question. You should have identified the following argument structure in the question above:

Premise:	In the last five years there has been a significant increase in the consumption of red wine.
Premise:	During this same time, there have been several major news reports about the beneficial long-term effects on health that certain antioxidants in red wine can provide.
Conclusion:	Thus, the increase in red wine consumption can be directly attributed to consumers' recognition of the beneficial effects of antioxidants.

The premises indicate that red wine consumption has increased in the last five years, and that during this time there have been several major news reports about the benefits of certain components of red wine. From this information we cannot draw any conclusions, but the author makes the classic GMAT error of concluding that one of the conditions causes the other. Your job is to find the answer that weakens this flawed reasoning.

From the "Situations That Can Lead to Errors of Causality" discussion, the scenario in this stimulus falls under item 2—"Two (or more) events occur at the same time." As described in that section, "While one event could have caused the other, the two events could be the result of a third event, or the two events could simply be correlated without one causing the other." Thus, you should search either for an answer that identifies a third event that could have caused the two events or one that shows the author mistook a correlation for causation. Answer choice (E) presents the former.

Answer choice (A): This answer does not hurt the conclusion. The information in the answer choice suggests that the increase in red wine consumption is unusual, but this answer still allows the news coverage to be the cause of that increase.

Answer choice (B): This answer agrees with the first premise, and so it does not hurt the conclusion.

Answer choice (C): The delay between wine consumption and the benefits of that consumption is not an issue in the argument.

Answer choice (D): Similar to answer choice (A), this answer does not undermine the conclusion. Because the argument mentions antioxidants in red wine were covered by the news reports, it is not unreasonable to think that other antioxidant-rich products would also see increased consumption. Thus, this answer can be seen as an additional effect to the cause in the stimulus, and that additional effect does not weaken the suggested cause.

Answer choice (E): This is the correct answer. The conclusion can be diagrammed as:

> NR = news reports
> RWCI = red wine consumption increased
>
> <u>C</u>   <u>E</u>
>
> NR $\longrightarrow$ RWCI

This answer presents an alternate cause for the increase in wine consumption, namely that prices dropped.

Remember, the classic error of causality appears when two events occurring simultaneously are mistakenly interpreted to be in a causal relationship. There can be many other possibilities for the arrangement: the two events could be caused by a third event (for example, a study touting the benefits of wine consumption could have caused both events), the events could be reversed (the increase in consumption could actually create the news coverage), or there may be other situations where the two do not occur together.

Please take a moment to complete the following problem:

2. The gill lining of lobsters in which the disease-causing parasite *An. haemophila* resides is completely regenerated every 30 days. The *An. haemophila* parasite typically produces moderate discoloration of the gills of infected lobsters, and can occasionally lead to more chronic symptoms. However, because these parasites cannot transfer directly from infected gill lining to newly generated gill lining in their host lobster, any discoloration appearing on the gills of lobsters more than 30 days after they have been moved to parasite-free water is not due to infection by *An. haemophila*.

Which of the following, if true, would most weaken the argument above?

(A) Other parasites are found more frequently in lobsters than *An. haemophila*.
(B) Lobsters that remain in parasite-rich waters can be re-infected by new *An. haemophila* parasites once newly generated gill lining has been produced.
(C) *An. haemophila* can also cause digestive and respiratory distress in infected lobsters.
(D) In some cases *An. haemophila* migrates from the gill lining to the stomach, where it can then re-infect its original host.
(E) Once infected by a particular parasite, lobsters frequently develop a strong immunity to that parasite allowing them to better resist re-infection.

This is a challenging Weaken question with a scientific undertone. As with any stimulus containing argumentation, it becomes imperative that you identify the conclusion as given by the author. Here, the author concludes that lobsters' gill discoloration appearing more than 30 days after begin removed from water with parasites *cannot* be due to *An. haemophila*. The reasoning given for this conclusion is that the gill-discoloring parasite *An. haemophila* resides in gill lining which is completely regenerated every 30 days and, since these parasites cannot go directly from infected gill lining to new, regenerated gill lining, then future gill discoloration must be the result of something else. Put more simply: *An. haemophila* cannot go directly from old to new gill lining, so it seems that continued gill infections must be caused by some other factor.

Since we want to weaken this causal argument, we are looking for an answer choice that shows how *An. haemophila* could possibly re-infect a lobster and cause further gill discoloration.

Answer choice (A): The argument in the stimulus is not about other parasites or how frequently various parasites are found in lobsters, so this answer choice has no effect on the author's conclusion.

Answer choice (B): For an answer choice to weaken a particular argument it is important that the scenario or situation described in the answer match the specific details of the situation in the argument itself. This answer is incorrect because the lobsters in the conclusion are said to be in parasite-free water, so information about lobsters in "parasite-rich" water is irrelevant.

Answer choice (C): The stimulus is only concerned with *An. haemophila*'s effect on the gill lining of lobsters, so information about other problems the parasite can cause has no bearing on the argument.

Answer choice (D): This is the correct answer. The author presumes that because the parasite cannot re-infect a host lobster by directly moving from the infected gill lining to the newly generated gill lining then *An. haemophila* cannot be the cause of future gill discoloration. However, if answer choice (D) is true, then *An. haemophila* can migrate from infected gill lining to the lobster's stomach, and then later re-infect that lobster's regenerated gill lining. This answer choice provides an alternative pathway for re-infection and thereby directly attacks the author's conclusion.

Answer choice (E): This answer choice actually strengthens the author's argument by showing that a previously infected lobster is more resistant to re-infection by the same parasite. Thus it would be even more difficult for *An. haemophila* to infect the same lobster a second time.

Causal Reasoning Review

Causality occurs when one event is said to make another occur. The *cause* is the event that makes the other occur; the *effect* is the event that follows from the cause.

Most causal conclusions are flawed because there can be alternate explanations for the stated relationship: some other cause could account for the effect; some third event could have caused both the stated cause and effect; the situation may in fact be reversed; the events may be related but not causally; or the entire occurrence could be the result of chance.

Causal statements can be used in the premise or conclusion of an argument. If the causal statement is the conclusion, then the reasoning is flawed. If the causal statement is a premise, then the argument may be flawed, but not because of the causal statement.

There are two scenarios that tend to lead to causal conclusions in Critical Reasoning questions:

1. One event occurs before another
2. Two (or more) events occur at the same time

When a GMAT speaker concludes that one occurrence caused another, that speaker also assumes that the stated cause is the *only* possible cause of the effect and that the stated cause will *always* produce the effect.

In Weaken questions, attacking a cause and effect relationship almost always consists of performing one of the following tasks:

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. Show that the stated relationship is in fact reversed
E. Show a statistical problem exists with the data used to make the causal statement

Final Note

Causal reasoning occurs in many different question types, and the discussion in this chapter is designed to acquaint you with situations that produce causal statements, how to identify a causal statement, and some of the ways that causality appears in GMAT problems. We will revisit these concepts as we discuss other question types.

As you examine GMAT questions, remember that causal reasoning may or may not be present in the stimulus. Your job is to recognize causality when it appears and react accordingly. If causality is not present, you do not need to worry about it.

On the following page is a short problem set to help you work with some of the ideas. The problem set is followed by an answer key with explanations. Good luck!

Causal Reasoning Problem Set

Please complete the problem set and review the answer key and explanations. *Answers on page 147*

1. Many scientists of the 1940s predicted that, new, exceptionally potent antibiotics would soon revolutionize the entire medical field. Patients would be given large dosages of these antibiotics, which would attack and kill harmful bacteria in the body, making the patients stronger as a result.

    Which of the following, if true, best describes a reasoning error in the scientists' prediction?

    (A) To achieve the proper dosage requirements, several rounds of antibiotics would likely be necessary.
    (B) In the 1940s, antibiotics had only recently been discovered.
    (C) Some patients respond more quickly than others to strong antibiotics.
    (D) Strong antibiotics act on all bacteria in the body in the same manner, including beneficial bacteria critical to human health.
    (E) Some of the proposed antibiotic treatments would be quite expensive to develop.

2. Alpha Cola, the best selling soft drink nationally among soda drinkers aged 18 to 25, recently completed an expensive and successful ad campaign. The makers of Epsilon Cola, a less popular soft drink that has been on the market for many years, claim that without the recent ad campaign, Alpha Cola would be no more popular than Epsilon.

    Which of the following, if true, would cast the most serious doubt on the assertion of the makers of Epsilon Cola?

    (A) Alpha Cola's recent ad campaign was intended in part to increase sales of the soft drink to soda drinkers aged 18 to 25.
    (B) Beverage buying decisions can be significantly influenced with effective ad campaigns.
    (C) Alpha Cola's recent advertising campaign was one of the most expensive advertising campaigns in history.
    (D) Prior to the recent campaign, Alpha Cola had never advertised but had significantly outsold all other soft drinks on the market for several years.
    (E) Most people prefer the taste of Epsilon Cola to that of Alpha Cola.

Causal Reasoning Problem Set

3. Among consumers in this country who take cruises regularly, the percentage who chose High Seas' cruise lines has decreased by 5 percentage points over the past five years. Since High Seas obviously relies on consumers to earn profits, these declines must have had a measurably negative impact on High Seas' earnings.

Which of the following, if true, most seriously weakens the argument above?

(A) Some trips were cut from the cruise schedule, and they were trips during which ticket sales had historically been sufficient to achieve profitability.

(B) There are many more cruise lines in existence today than there were five years ago.

(C) The number of people who regularly take cruises has increased significantly over the past five years.

(D) Five years ago, High Seas reduced the number of cruises on its annual schedule.

(E) High Seas cruises travel to several different destinations.

4. Medical Student: Last week, a certain patient at this hospital weighed 150 lbs. Since the same patient weighs 160 lbs. today, and he appears to be much healthier than he was last week, he would be well advised to gain another ten pounds during the coming week.

Which of the following, if true, undermines the argument above?

(A) The same scale was used to measure the patient's weight in both instances.

(B) The patient was notified by his physician of this week's weight gain.

(C) During the past week, the patient has eaten less food than he would normally eat.

(D) When the patient was weighed last week, an illness had caused the patient's weight to drop ten pounds below its normal level.

(E) Quick weight loss can be hazardous to one's health.

Causal Reasoning Problem Set Answer Key

Question #1. Weaken-CE. The correct answer choice is (D)

This is an interesting problem because the causality is presented entirely in the last sentence with the causal indicator at the end of the sentence. The phrase used to indicate that causality is present is "as a result."

> A = large dosages of antibiotics
> PS = kill harmful bacteria in the body and make the patient stronger as a result

> C   E
>
> A ⟶ PS

The question stem asks you to weaken the argument, and according to the "How to Attack a Causal Conclusion" section you should be on the lookout for one of several primary methods of attacking the argument.

Answer choice (A): This answer is consistent with the argument, and thus cannot undermine the argument. The stimulus clearly notes that "large doses" would be administered, and administering those antibiotics over several rounds is not ruled out by the author's statements.

Answer choice (B): This answer agrees with statements in the stimulus and has no effect on the argument. The fact that antibiotics had only recently been discovered plays no role in the further assertion that those antibiotics, when given to a patient, would have a positive effect.

Answer choice (C): This information has no effect on the argument. The wording in the stimulus is clear about making the patient "stronger as a result," which allows for a variety of time horizons for patient benefit.

Answer choice (D): This is the correct answer, and this answer falls into the second category for weakening a causal argument: "Show that even when the cause occurs, the effect does not occur." In this instance, because the antibiotics can kill helpful bacteria as well as harmful bacteria, the effect of the antibiotics is not necessarily a stronger patient, but one that may in fact be weakened. Because the antibiotics do not necessarily make the patient stronger as a result, the argument is undermined.

Answer choice (E): This answer choice has no impact on the argument. The expense of the proposed antibiotic treatments is not an issue in the argument.

Causal Reasoning Problem Set Answer Key

Question #2. Weaken-CE. The correct answer choice is (D)

In this stimulus the author discusses Alpha Cola, a popular soda that just spent a lot on a national advertising campaign. A less popular competitor, Epsilon Cola, claims that without the advertising campaign Alpha Cola would be no more popular than Epsilon Cola. The implication: Alpha's success is attributed to the company's advertising expenditures.

The Epsilon causal claim is as follows:

> A$ = spending on successful and expensive advertising campaign
> AC Pop = Alpha Cola's popularity

> $\underline{C}$ $\qquad\qquad$ $\underline{E}$

> A$ $\longrightarrow$ AC Pop

As discussed previously, there are five possible ways to attack the author's causal claim that greater spending on Epsilon's part would lead to popularity that equals Alpha's. The correct answer in this case, answer choice (D), uses the third method of attack discussed—showing that the effect has occurred even in the absence of the supposed cause.

Answer choice (A): The intention behind the successful ad campaign has no effect on the causal argument advanced in the stimulus; clearly, the intention behind an advertising campaign is often to increase sales, and this certainly doesn't hurt the Epsilon argument that Alpha's popularity gap was the result of the recent ad campaign.

Answer choice (B): Because this choice actually strengthens Epsilon's conclusion that Alpha's popularity resulted from a successful ad campaign, this choice cannot be the correct answer to this causal weaken question.

Answer choice (C): The stimulus provided the information that the campaign was costly, and if it was the most expensive in history this certainly wouldn't weaken the conclusion that Alpha's margin in popularity was the effect of that costly ad campaign.

Answer choice (D): This is the correct answer choice, providing information that significantly undermines the Epsilon assertion. If both colas have been available for years, and Alpha has enjoyed significantly more sales for years (even without advertising) then this hurts the claim that the Alpha advantage resulted from heavy advertising expenditures.

Answer choice (E): Since this answer rules out the alternative cause of taste preference, this choice actually strengthens the assertion that the ad campaign is the cause of the Alpha Cola sales advantage. As such, this choice cannot be the correct answer to this Weaken question.

Causal Reasoning Problem Set Answer Key

Question #3. Weaken-CE. The correct answer choice is (C)

This is a tricky problem. The premise contains information concerning a decrease in the percentage of consumers who chose High Seas' cruise lines in the past five years. This is where smart GMAT reading comes into play: does the argument say *fewer* people sailed on the line, or does it say there was a *lower percentage* of people making the choice of High Seas? Recognizing the difference is critical for successfully solving this problem, because the five percent decrease is among "consumers in this country," which, as a whole, could have grown dramatically over the past five years, and also does not include cruisers from other countries.

The conclusion about the negative earnings indicates the author believes the following causal relationship:

> 5% Down = decrease of 5 percentage points over the past five years
> EN = negative impact on earnings

<div align="center">

C   E

5% Down   ⟶   EN

</div>

Literally, the author believes that the five percent decrease translated into fewer cruisers, which then lead to lower earnings. The question stem asks you to weaken the argument, and the correct answer falls into one of the five basic methods for weakening a causal argument.

Answer choice (A): The argument does not indicate or rely upon the assertion that trips were cut from the cruise schedule. Although cutting trips may be a cause of the five percent decrease (the cause of the cause), or, alternatively, an effect of lower earnings (the effect of the effect), it does not attack the causal relationship about whether the five percent decrease resulted in lower earnings. Literally, this answer can be seen to involve events either before or after the causal assertion, but that does not affect the causal relationship posited in the stimulus.

Answer choice (B): At best, this answer has no effect on the stimulus, and at worst, this answer would strengthen in the stimulus.

Answer choice (C): This is the correct answer. This answer shows that although five percent fewer people of the total may have chosen High Seas, that five percent reduction could have come against a much larger overall pool of people. Here's an example:

	5 Years Ago	Now
% Choosing High Seas:	55%	50%
Total Cruise Consumers:	100	1000
Total High Seas Customers:	55	500

Thus, this answer choice undermines the causal relationship by showing that even though the cause is present, the effect does not occur.

Answer choice (D): This answer would possibly serve to support the idea that earnings are down, and so it cannot undermine the argument.

Answer choice (E): This information, while nice for consumers, is useless for attacking the conclusion.

Question #4. Weaken-CE. The correct answer choice is (D)

In this example, the medical student concludes that a particular patient should gain ten pounds in the coming week, based on the premise that the patient has gained ten pounds since last week and appears healthier. The presumption on the part of the medical student appears to be that the ten-pound weight weekly weight gain caused the healthier appearance, and so another weight gain would have a similar effect.

The stimulus is followed by a Weaken question, so the correct answer choice will provide some reason to question the medical student's conclusion that the patient would be well-advised to gain another ten pounds this week.

Answer choice (A): This answer choice supports the premise that the patient gained ten pounds, but this information would not weaken the medical student's conclusion in any way.

Answer choice (B): There is no way to assess what role patient notification might play (would this make the patient more or less likely to continue to gain weight at the same pace?), so this answer would not weaken the medical student's conclusion that last week's weight gain should be matched this week.

Answer choice (C): Some students are thrown off by this answer choice, because of the discrepancy between eating less and gaining weight. However, this choice does nothing to undermine the conclusion that the weight gain should be replicated during the coming week.

Answer choice (D): This is the correct answer choice. If the patient was ten pounds below normal weight before gaining the ten pounds, this means that the patient is currently right at his or her normal weight. As such, it wasn't the ten pound weight increase that led to the patient's better health, it was a return to his or her normal weight. This answer choice provides an alternate cause for the healthier appearance, and undermines the medical student's conclusion that it was the mere gaining of weight that increased health.

Answer choice (E): Since the stimulus does not deal with the issue of weight loss, this choice does not undermine the medial student's conclusion.