Solutions to the Most Difficult Official Assumption Questions

An e-GMAT Product

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INTRODUCTION

Dear Students,

The e-GMAT CR team is happy to provide you with detailed solutions to the most challenging questions in OG13 (Q90-Q123), VR 2nd Edition (Q60-Q83) and GMAT Prep Software (New and Old).

This file contains solutions for the Assumption questions present in the above sources.

We are proud to share these solutions with you, and we hope that these solutions contribute to your success on the GMAT.

Regards,

The e-GMAT CR Team

PS: Please note that due to copyright issues, we cannot include the complete question text for OG13 and VR 2nd Edition questions.

OG 13– QUESTION NO. 93

Commentator: The theory of trade retaliation…

The commentator's argument relies on which of the following assumptions?

A. No country actually ….
B. No country should ...
C. Trade disputes should ...
D. For any two ...
E. Countries close their ...

SOLUTION

PASSAGE ANALYSIS

Commentator: The theory of trade retaliation … other country to reopen its markets.	Key-points from this statement: 1. Commentator= author of the argument 2. There is a theory called trade retaliation (TR) theory 3. According to TR theory: a. If some countries are not allowed to trade in any market of another country b. then these countries should also close some of their own markets to the country that locked them out of its market(s) 4. Reason behind (b) above: to create pressure on the opposite country to open the closed markets
If every country … any other.	This is author's conclusion. The author says that if every country followed the TR theory, then there would be no two countries left that would trade with each other.

PRE-THINKING

Our task in this question is to find out the author's assumption behind his/her conclusion. Now basing his/her judgment on the dynamics of the TR theory, the author concludes that:

If every country acted according to this theory, no country would trade with any other.

So, basically the author is trying to say that if every country in the world followed the TR theory, a situation would arise when eventually no two countries would be left with any of their markets

open to each other. For instance if country Alpha and Gamma were to act according to TR theory then ultimately all of Alpha's markets would be close to Gamma and vice-versa. This is because each country, following the TR theory, would keep closing down its markets to the other in order to create pressure on the opposite country to open its market(s). However, **the essential question is why would this endless chain of reaction begin in the first place**? The answer is very simple; the author assumes that:

- In the case of any two countries, at least one country has at least one of its markets closed to the other

If the above is not taken into account, the TR theory would have no basis to operate. This is because it is a **retaliation** theory, and to retaliate you must have an original action. In this case the original action is the situation in which, between any two countries, at least one market is closed.

With the above analysis in mind, let's take a look at the answer choices.

ANALYSIS OF OPTION STATEMENTS

A. No country actually ...	This answer choice is not correct. Contrary to answer choice A, in the situation on which the author's conclusion is based, every country is indeed following the TR theory. Clearly, answer choice A is not in the same line of thought as the author's conclusion and, hence, is not the correct answer.
B. No country …	This option is incorrect. The conclusion talks about a scenario where the countries act per TR theory, which involves blocking of markets. Therefore, this option statement which is against blocking of markets cannot be an assumption.
C. Trade disputes should …	This option is incorrect and irrelevant. The settling of trade disputes in an alternative fashion has no bearing on the outcome of the TR theory, which is what the argument deals with. Hence, answer choice C fails to impact the author's conclusion in any way whatsoever.
D. For any two ...	This is the correct option. It is exactly what we predicted in our pre-thinking phase. As discussed earlier, the author's conclusion about the endless chain of trade reactions between two countries would not hold true unless the condition mentioned in answer choice D were true. If we negate this assumption, we get: *It is not true that for any two countries, at least one has some market closed to the other.*

	In the above scenario, the TR theory would have no basis to operate as there is not instigating point for any of the two countries involved. Hence, the author's conclusion would not hold true. Clearly, answer choice D is the correct answer.
E. Countries close their ...	This option is incorrect. It is out of scope. The TR theory does not factor in the reason that the first instance of closing down the market would take place. The theory is only concerned with what other country's reaction should be, when it finds itself locked out of some country's market. Hence, the statement given in answer choice E has no bearing on the author's conclusion.

OG 13 – QUESTION NO. 96

Although parapsychology is often...

The conclusion above is properly drawn if which of the following is assumed?

A. If a field of ...
B. Since parapsychology uses scientific ...
C. Any enterprise that does ...
D. Any field of study ...
E. Since parapsychology raises clearly ...

SOLUTION

PASSAGE ANALYSIS

Although parapsychology is often …	Key-points from this statement: a. Parapsychology is normally considered a pseudoscience b. Author of the argument doesn't agree with the above c. Author considers parapsychology a true scientific enterprise (conclusion of the argument) d. Author gives reason for treating parapsychology as a true scientific branch. Reason is: parapsychology uses scientific methods

PRE-THINKING

The question stem asks us to find the assumption on which the argument depends. Now an assumption should have three basic characteristics:

(a) It should present new information.
(b) It should be a must be true statement (if we negate the assumption, the conclusion falls apart).
(c) It should support the argument.

Keeping these three guidelines in mind, let's look at our understanding of the reasons given and conclusion drawn in the passage.

Conclusion given: …*parapsychology(is) a true scientific enterprise*

Reason for the conclusion: …*parapsychology uses scientific methods*

So essentially the author must assume a link between using scientific methods and qualifying a field as scientific or not. Therefore, we can safely state that the author assumes that:

- If a field uses scientific methods, then it qualifies as a genuine scientific enterprise.

With this pre-thinking let's approach the answer choices.

ANALYSIS OF OPTION STATEMENTS

A. If a field of ...	This option is incorrect. As per this choice, a necessary condition for a field to be considered true science is that it should conclusively answer the questions it raises. However, in the given argument the author distinctly states that since parapsychology uses scientific method such as using statistical test to examine the questions raised, it is a true science. Therefore, it is amply clear that **according to the author**, **just approaching the questions raised with scientific methods is a good enough basis for a field to be considered a true science**. Also, please not that this option lays stress only on answering the questions conclusively; no emphasis is laid on using scientific methods in the process. This aspect makes answer choice A out of scope as well. Clearly this option is incorrect.
B. Since parapsychology uses scientific ...	This option is not correct as it is completely out of scope. The author has not implied any relationship between producing credible results and qualifying a field as a science on the basis of these results. The underlying emphasis is just on the usage of scientific methods. Hence answer choice B is incorrect.
C. Any enterprise that does …	This option is incorrect. Firstly, the author's purpose behind giving examples of scientific methods such as controlled experiments and statistical tests was not to define what constitutes scientific methods and what does not. So, it is possible that some other processes could as well be regarded as scientific methods. In such a case, a field could employ those processes and be qualified as a genuine science. Secondly the author says that using such scientific methods is a sufficient condition to regard parapsychology as a true science. The author does not say it is a necessary condition

	that should be present in all true scientific enterprises. Therefore, the author's conclusion is not dependent on the statement given in answer choice C.
D. Any field of study ...	This option is correct. It is exactly on the same lines as our pre-thought answer. For the author to validate his conclusion, he must assume that there is a link between using scientific method and qualifying a field as genuine scientific enterprise. Since this a must be true condition, when we negate this assumption, the conclusion of the argument must fall. The negated statement will be: *It is not true that any field of science that employs scientific methods is a genuine scientific enterprise.* The above statement shatters our faith in the author's argument. Now the author can't call parapsychology a science on the basis of its usage of scientific methods as the qualifying criterion is not valid anymore. Hence option choice D is a must be true statement that the author of the argument has to assume for drawing the stated conclusion.
E. Since parapsychology raises clearly …	This option is incorrect. It is an iSWAT: it picks up words from the given passage but changes the context completely to make the answer choice incorrect. The author of the argument mentions *clearly statable questions and controlled experiments* to give examples of scientific methods used by parapsychology. The author's argument is based on the use of such scientific methods and not their inter-relationship. Hence, answer choice E is not correct.

OG 13 – QUESTION NO. 106

Exposure to certain chemicals commonly...

Which of the following is an assumption on which the argument depends?

A. The number of school ...
B. Children who are allergic ...
C. Children who have allergic ...
D. The chemicals are not ...
E. Children attending elementary school ...

SOLUTION

PASSAGE ANALYSIS

Exposure to certain chemicals … some children.	The author starts off by stating that certain chemicals which are commonly used in elementary schools are allergic in nature and so cause allergic reactions in some children.
Elementary school nurses … over the past ten years.	Now this statement presents a fact about the past ten years. According to this statement, the elementary school nurses reported that the proportion of school children, who are sent to the nurses because the children got allergic reactions to the chemicals, has increased quite a lot over the past ten years.
Therefore, either Renston's schoolchildren … were ten years ago.	Based on the above two facts, the author now concludes that since the proportion of children who approach the school nurses for treatment to allergies has increased significantly, there could only be two causes for this increase. Either schoolchildren have been exposed to greater quantities of chemicals or the schoolchildren have become more sensitive to the chemicals than the schoolchildren ten years ago were.

The question stem clearly asks us to find an assumption in the above argument.

With this understanding, let us pre-think some possible assumptions.

PRE-THINKING

Let us first look at the author's line of reasoning. How does he arrive at the conclusion?

He presents a general fact about the chemicals used in schools. The chemicals used in schools cause allergies in some children.

He then presents another fact about the past ten years. Over the past ten years, the school nurses have reported a significant increase in the proportion of children that come to them for the treatment of allergies caused by the chemicals.

Based on these two facts, the author concludes that either the children are being exposed to more quantities of chemicals or children have become more sensitive to the chemicals.

So based on two facts, the author concluded that there could be only two possible reasons that can explain why a higher proportion of children has been reporting to the school nurses for treatment.

In other words, the author assumes that there could be no other reason for the increase in that number.

However, this is a broad assumption. Let us try to prethink an assumption which is more specific.

The author's conclusion was that children are being exposed to more quantities of chemicals or that children now are more sensitive. Now, let us ask ourselves the following. What if the quantity of chemicals that the children are exposed to remained the same and children now are no more sensitive than children ten years ago were, but some other external factor is causing the increase in the proportion of children that are getting affected?

For example, what if the same amount of chemicals has a significantly higher effect on the children at higher temperatures and the average temperature of Renston has been quite high over the past ten years which wasn't the case previously? Then that means the increase in the proportion of children affected is neither because of more chemicals nor because children now are more sensitive but because the temperature (or some other similar external trigger) is higher. This breaks down the conclusion of the argument.

Therefore the author assumes that there could be no other external factor that is causing a significant increase in the number of children going to nurses.

With this understanding, let us move on to the option choice analysis.

ANALYSIS OF OPTION STATEMENTS

A. The number of school ...	Observe that the argument talks about the proportion of children that are reporting to the school nurses as a whole. A change in the number of nurses doesn't explain why a higher proportion of children get allergies. This is an incorrect option.
B. Children who are allergic ...	This is an irrelevant option statement. We are concerned about why there has been an increase in the proportion of students that get

	affected by allergies because of chemicals used at school and report to the school nurses. Allergies to other substances is irrelevant in the argument. Such a comparison doesn't help in concluding why the proportion of children who are getting infected due to exposure to chemicals used at school has increased significantly over the past ten years.
C. Children who have allergic …	This seems to be the correct option because the author doesn't consider anything about this likelihood in his argument. So he seems to be assuming that the likelihood of affected children approaching the school nurses hasn't increased. Just to be sure, let us take the negation of this option statement and see if it breaks down the conclusion. The negation of this option statement is "Children who have allergic reactions to the chemicals are **more likely** to be sent to a school nurse now than they were ten years ago." Now, the above negated statement can be a likely reason for an increase in the proportion of children who approach the school nurses after getting affected by allergies. If this is the case, then the author's conclusion talking about two other causes breaks down. So this is the correct answer.
D. The chemicals are not ...	We are given in the argument that these chemicals are commonly used in schools. Moreover, if they are commonly used in houses then that would have been the case probably ten years back too. So this doesn't explain the increase in the proportion of affected children. This is an irrelevant option.
E. Children attending elementary school ...	The argument is concerned about the proportion of children that get affected by the chemicals and approach the school nurses. Whether children as a whole are a large proportion or a small proportion of the entire population is irrelevant to the argument. So this is an incorrect option.

OG 13 – QUESTION NO. 109

Last year all refuse collected by Shelbyville ...

Which of the following is required for the revamped collection program to achieve its aim?

A. This year, no materials ...
B. Separating recyclable materials from ...
C. Refuse collected by city ...
D. The refuse incinerated this ...
E. The total quantity of ...

SOLUTION

PASSAGE ANALYSIS

Last year all refuse … of residual ash.	The statement says that last year, Shelbyville city generated a large quantity of residual ash by burning all the collected refuse.
In order to reduce … its collection program.	Now, the city wants to reduce the amount of residual ash that would be generated to half the amount of ash produced last year. To achieve this objective, the city has changed its refuse collection program.
This year city services will … to half of last year's number.	According to the new collection program, enough refuse will be recycled so that the refuse is reduced to half the number of truckloads that the city produced last year.

So the author initially presents a couple of facts about Shelbyville city. The city produced a large quantity of ash last year by burning the collected refuse. However, this year the city wants to reduce the amount of **ash** to half the amount of ash produced last year. So the city decided to reduce the amount of **refuse** to be burnt to half the amount of refuse last year.

The question stem asks us to find an option statement that must be true for the city to achieve its target of reducing the residual ash to half.

So if we think of the conclusion of the argument as "the city can achieve its target of reducing the residual ash produced this year to half the ash produced last year by reducing the amount of refuse incinerated to half", then the question stem essentially asks us to find an assumption in the argument.

We need to find an option statement that is required for the conclusion to be true.

PRE-THINKING

So what is the assumption here? Essentially, the author assumes that halving the refuse will halve the ash produced.

Now we know that refuse is essentially waste that is discarded from various activities. Waste can be discarded from households, factories, vehicles, industries, farms etc. So depending on the entities present in a city, the composition of refuse can change. So let us ask ourselves, what if the composition of the refuse has changed this year? i.e. what if the refuse produced this year generates much more ash than the refuse produced last year?

Can the city's aim still be achieved by halving the city waste? NO.

For example, if last year 1 truck load of refuse produced 1 ton of ash and this year 1 truck load of refuse produces 7 tons of ash (because the composition of refuse has changed), then can the city reduce the ash produced by half by simply halving the refuse? No.

So the author assumes that a truckload of refuse produced this year doesn't produce more ash than a truckload of refuse produced last year does.

With this understanding, let us move on to the option choice analysis.

ANALYSIS OF OPTION STATEMENTS

A. This year, no materials …	This option is incorrect since the argument does not require this assumption. Even if some material that can be recycled is actually incinerated, it is possible that the amount of ash can still be halved. So, the conclusion does not break down even if this option is negated.
B. Separating recyclable materials from	The argument is not at all concerned with costs. The argument is only concerned whether halving the number of truckloads of refuse will halve the amount of ash produced. The cost of recycling is irrelevant here. This is an irrelevant option.
C. Refuse collected by city ...	Even though this option is quite attractive for a category of students, this is not correct. This option somewhat strengthens the possibility that city services will be able to achieve its aim. However, this option is not a "must be true" statement for the argument to hold. The reason is not very difficult to understand. Do we know anything about the proportion of recyclable materials in the refuse last year? The answer is No.

	Do we know anything about the proportion of refuse that was recycled or incinerated last year? The answer is again No. Given that we do not have answers to these questions, this option statement, which compares the proportion of recyclable materials in this year with that in last year, is not required for the argument to hold.
D. The refuse incinerated this ...	This seems to be in line with our pre-thinking. If a truckload of refuse this year produces more ash than a truckload of refuse last year did, then halving the number of truckloads will not reduce the amount of residual ash produced to half. So, this option statement is required for the conclusion to hold. So this is the correct answer.
E. The total quantity of ...	Like option C, this option may somewhat strengthen the possibility that the city services will be able to achieve its objective. However, this option is also not required for the argument to hold. Even if the refuse collected this year is greater than the refuse collected last year, the amount of refuse incinerated and the amount of ash generated can still be half of that of last year. This is because we do not know anything amount of refuse recycled. If both (total amount of refuse) and (total amount recycled) increase, then it may not have any impact on the amount of refuse incinerated. In such a case, there is no such impact on the plan. Therefore, this option is incorrect.

OG 13 – QUESTION NO. 113

The average hourly wage of … Vernland has increased.

Which of the following is an assumption on which the argument depends?

A. The number of television assemblers ...
B. Televisions assembled in Vernland ...
C. The average number of ...
D. The number of televisions ...
E. The difference between the ...

SOLUTION

PASSAGE ANALYSIS

The average hourly wage … in neighboring Borodia.	This is a simple factual statement. There are two places, Vernland and Borodia. The average per hour wage of television assemblers in Vernland has been significantly lower for a long time than the average per hour wage of television assemblers in Borodia.
Since Borodia dropped all … has not changed.	The statement says that three years ago, Borodia dropped all tariffs on televisions that came from Vernland to Borodia. However, the annual number of televisions that are sold in Borodia hasn't changed after the tariff removal.
However, recent … in Borodia.	This is another factual statement. Recently the number of television assemblers in Borodia has dropped.
Therefore, updated trade … has increased.	Based on the above information, the author now concludes something. He says that new data will probably show an increase in the number of televisions imported from Borodia to Vernland.

So the author essentially starts off by saying that the wages of television assemblers in Vernland has been significantly lower than the wages of their counterparts in Borodia. He then proceeds to say that even though the tariffs on Vernlandian televisions have been dropped in Borodia, the number of televisions sold in Borodia hasn't changed and moreover, recent data indicates a decrease in the number of television assemblers in Borodia.

Now, since the number of televisions sold in Borodia remained the same and the number of television assemblers decreased, the author concludes that most probably there will be increase in

the number of televisions imported from Vernland to Borodia to compensate for the probable decrease in number of televisions produced in Borodia.

PRE-THINKING

Let us look at the author's line of reasoning.

The author says that since the number of televisions sold in Borodia remained the same while the number of television assemblers decreased, most probably there will be an increase in the number of televisions imported from Vernland.

Why does the author arrive at that conclusion?

He is attributing a decrease in the number of television assemblers to a probable decrease in the number of televisions. He also thinks that the deficit in televisions will most probably be filled by importing televisions from Vernland.

So let us ask ourselves the following. If the decrease in the number of television assemblers did not lead to a decrease in the number of televisions, then will there be an increase in the number of televisions imported? For example, let us say that introduction of advanced machinery has increased the number of televisions each assembler can produce. Then can we still say that there will be an increase in the number of imported televisions?

No. Because the number of televisions produced wouldn't have changed. So if the decrease in the number of television assemblers didn't decrease the number of televisions, then most probably there won't be any increase in the number of imported televisions.

So the author assumes that the number of televisions produced per television assembler didn't increase correspondingly.

What else does the author assume? He thinks that the deficit in televisions will most probably be filled by importing televisions from Vernland.

What if that isn't the case? Suppose that there is another place called Sonyland which allows the import of televisions of the same quality at a much cheaper cost. Can the author still say that a deficit in the number of televisions is most probably compensated by importing from Vernland, not Sonyland?

No, he cannot. If importing from Sonyland costs much lower than importing from Vernland does, then most probably any deficit in the television production will be compensated by importing from Sonyland and not Vernland. This will break the conclusion that the number of televisions Borodia imports annually from Vernland will increase.

Therefore the author assumes that there is no other place which can be much more economical to import televisions from than Vernland is.

With this understanding, let us move on to the option choice analysis.

ANALYSIS OF OPTION STATEMENTS

A. The number of television assemblers in Vernland has increased by at least as much as the number of television assemblers in Borodia has decreased.	Increase in imports from Vernland can occur even if the number of television assemblers didn't increase as much as the decrease in television assemblers in Borodia. Actually, the number of television assemblers in Vernland is of no concern to the argument. Vernland can export television to Borodia even if its number of television assemblers has declined. So this is an incorrect option.
B. Televisions assembled in Vernland have features that televisions assembled in Borodia do not have.	The argument isn't concerned about the features in the televisions. So this is an incorrect option.
C. The average number of hours it takes a Borodian television assembler to assemble a television has not decreased significantly during the past three years.	This seems to be the correct option. If the average number of hours required to produce a television has decreased significantly then a drop in the number of television assemblers need not necessarily indicate a drop in the total number of televisions produced. If the total number of televisions produced didn't decrease then it is unlikely that more televisions will be imported. This breaks down the conclusion that the number of televisions imported from Vernland will increase. So this is the correct answer.
D. The number of televisions assembled annually in Vernland has increased significantly during the past three years.	For an increase to be observed in the number of television imports from Vernland, the number of televisions assembled need not be significantly increased. Even if this increase is low, there is still a possibility for an increase in the imports from Vernland. So this is not a must be true statement. So this is an incorrect option.
E. The difference between the hourly wage of television assemblers in Vernland and the hourly wage of television assemblers in Borodia is likely to decrease in the next few years.	The argument is not concerned about the difference in wages. The argument is only concerned about whether a decrease in the number of television assemblers in Borodia will increase the number of televisions imported from Vernland. The wage difference is irrelevant to the argument. Moreover, the argument is concerned with the change in the television imports from Vernland now, not in the next few years.

	So, this is an incorrect option.

VERBAL REVIEW 2ND ED. – QUESTION NO.63

Traditionally, decision making by managers ...

The conclusion above is based on which of the following assumptions?

A. Methodical, step-by-step …
B. Top managers have the ....
C. The decisions made by ...
D. Top managers use intuitive ...
E. Top managers are more ...

SOLUTION

PASSAGE ANALYSIS

Traditionally, decision making by managers … decision making.	The author initially presents a general notion. He says that the decision making that involves step by step reasoning is generally considered better than the intuitive decision making,
However, a recent study … managers.	However, recently a study indicated that top managers used intuition significantly more than most other managers did.
This confirms … methodical reasoning.	Based on the above study results, the author concludes that intuition is more effective than careful methodical reasoning.

The question asks us to find an assumption in the author's argument.

PRE-THINKING

Let us look at the author's line of reasoning here. He concludes that intuition is more effective than methodical reasoning because top managers use intuition much more than other managers.

How does the author reach this conclusion?

Can we say intuition is more effective just from our knowledge that top managers use intuition more frequently? No. We cannot know if intuition is effective or not, until we know if the decision making process of top managers is more effective than that of other managers.

So the author inherently assumes that the decision making process of top managers is more effective than the decision making process of other managers.

With this understanding, let us move on to the option choice analysis.

ANALYSIS OF OPTION STATEMENTS

A. Methodical, step-by-step reasoning is inappropriate for making many real-life management decisions.	The conclusion is not concerned about the "appropriateness". The conclusion is about the effectiveness of intuition vs effectiveness of step by step reasoning. So this is an incorrect option.
B. Top managers have the ability to use either intuitive reasoning or methodical, step-by-step reasoning in making decisions.	The argument as such is about the relative effectiveness of two forms of decision making and does not depend on whether the top managers can use both forms of decision making or not. Even if the top managers used only intuitive reasoning, the argument may hold. So this is an incorrect option.
C. The decisions made by middle- and lower-level managers can be made as easily by using methodical reasoning as by using intuitive reasoning.	This option statement seems to indicate that both types of reasoning are almost equally effective. However, the conclusion states that intuition is more effective than step by step reasoning. So, this statement is actually against the conclusion and hence cannot be an assumption. Therefore, this is an incorrect option.
D. Top managers use intuitive reasoning in making the majority of their decisions.	The argument about effectiveness of decision making does not depend on whether top manager make majority or minority of their decisions using intuitive reasoning. In either of these cases, we are given that top managers use intuitive reasoning more than middle- or lower managers. Therefore, the argument holds even if option D does not hold. Therefore, it is not an assumption. So this is an incorrect option.
E. Top managers are more effective at decision making than middle- or lower-level managers.	This is in line with our pre-thinking and is the correct answer. The negation of this option statement is "Top managers are not more effective at decision making than middle or lower level managers" If this is true, then the author cannot conclude that intuition is more effective than step by step reasoning. So this is the correct answer.

VERBAL REVIEW 2ND ED. – QUESTION NO.67

A compelling optical illusion …

The conclusion above would be more properly drawn if it were made clear that the

A. truck's speed is assumed to be lower …
B. truck's speed is assumed to be the same …
C. truck's speed is assumed to be higher …
D. motorist's estimate of time available is assumed to be more accurate with cars …
E. motorist's estimate of time available is assumed to be more accurate with trucks …

SOLUTION

PASSAGE ANALYSIS

A compelling optical illusion … the objects are.	Key-points from this statement: 1. There is an optical/visual illusion called illusion of velocity and size 2. In this illusion: the larger the object is, the slower it appears to be moving. Please bear in mind the implication of the word illusion. In an illusion things seem different from what they actually are. Since here the larger objects seem/appear to be moving slower, the understanding would be that they actually are NOT moving that slowly.
Therefore, a motorist's estimate … large truck approaching.	Key-points from this statement: 1. Author applies the above mentioned optical illusion phenomenon to a particular case 2. In the case at hand there are three elements: a. A motorist b. A small car c. A large truck 3. As per the illusion, if a motorist wants to cross the highway, he will budget less time for the small car approaching him/her than for the large truck approaching him/her.

PRE-THINKING

The question stem asks us to find a statement that will help establish the conclusion more appropriately. Essentially this means that we need to find a statement that the author has not stated but assumed while making the conclusion. So to find the correct assumption, let's look at the argument once again keeping the passage-analysis in mind:

1) A kind of optical illusion exists where the larger the object the more the effect of the illusion is.
2) Effect of illusion: makes moving objects seem to move at a lower speed than they actually are.
3) Author's application of the illusion: a motorist will budget less time for a small car approaching his/her path than for a large truck doing so.

Now the quintessential question is "Why does the motorist budget less time for a small car and more time for the large truck?". The answer is that the motorist is under the illusion. The illusion makes him/her think that the small car is moving faster than the large truck and, hence, he is budgeting the time accordingly. So what is the reality in this case? How can the author justify giving this example for the optical illusion being discussed? The only way the author is justified in applying the working of the illusion in this case if he/she assumes that ***there is no difference between the speed of the small car and the large truck*** but still since the truck is the bigger object between the two, it appears to be moving more slowly to the motorist.

With this pre-thinking in mind, let's approach the following answer choices:

ANALYSIS OF OPTION STATEMENTS

A. truck's speed is assumed to be lower than the car's	This option is incorrect. If the truck's speed is actually lower than that of the car, then there is no illusion. This means that the motorist is probably making a fair estimate of the speeds of the objects and hence, the author's judgment is probably not valid in applying the effect of the illusion in this case. However, our job is to make the author's conclusion more valid. Therefore, this is not the correct answer choice.
B. truck's speed is assumed to be the same as the car's	This is the correct answer. This is exactly the same as our pre-thought answer. Before we discuss why this answer choice is correct, let's look at the possible hypothetical scenarios where both the car and the truck are moving. There can only be three cases here: (1) *The truck is moving at a lower speed than the car:* this is the exact same case as answer choice A. As we have established, under this scenario, there is probably no illusion at play and the motorist has made a fair estimate in budgeting his/her time. *(2) The truck is moving at a higher speed than the car:* If this were the case, then chances are that the motorist would think that both the objects are moving at the same pace. This is because the illusion would make the motorist estimate the speed of the truck lower than it actually would be.

	(3) *The truck and the car are moving at the same speed:* This is the case that this answer choice presents. As mentioned in the pre-thinking phase, the only way the author is justified in applying the working of the illusion in the motorist's example is if he/she assumes that ***there is no difference between the speed of the small car and the large truck*** but still since the truck is the bigger object between the two, it appears to be moving more slowly to the motorist Clearly, answer choice B is the correct answer.
C. truck's speed is assumed to be higher than the car's	This option is incorrect. This is the same scenario as presented in case number (2) above. As established there, this answer choice is not correct.
D. motorist's estimate of time available is assumed to be more accurate with cars approaching than with trucks approaching	This option is incorrect. According to the information given in the argument, it does not matter what the object is, the illusion will always work with moving objects. It is just that comparatively, the larger the object-- the more the effect of the illusion. So if the comparison were between a small car and a large car, then the motorist would budget less time for the small car and more for the large car. In this case, both the objects are cars; however, the motorist's estimate is again affected by the illusion. So option choice D does not fit in this case. Hence, it is not an assumption from which the author's conclusion can be validly drawn.
E. motorist's estimate of time available is assumed to be more accurate with trucks approaching than with cars approaching	This option is incorrect for two reasons: (1) As discussed in answer choice D, the category of the object does not matter. So if the size and all other physical dimensions of a large car and a truck are the same, the motorist, given the effect of the illusion, will be likely to budget the same time for both these vehicles. (2) It goes directly against the information given in the passage. Between the truck and the car, the truck is generally the larger object and according to the given optical illusion, it is the truck's speed that will seem slower than it actually is. Hence, this will lead the motorist to a comparatively more inaccurate estimate of the time in hand.

VERBAL REVIEW 2ND ED. – QUESTION NO.69

When people evade income taxes ...

The vicious cycle described above could not result unless which of the following were true?

A. An increase in tax ...
B. Some methods for detecting ...
C. When lawmakers establish income ...
D. No one who routinely ...
E. Taxpayers do not differ ...

SOLUTION

PASSAGE ANALYSIS

When people evade income taxes … cycle results.	The author says that when people don't pay taxes, a cycle of events results.
Tax evasion forces … become heavier.	Here, the author describes the cycle of events mentioned in the previous statement : If some people don't pay taxes, then, to compensate for it, lawmakers are forced to increase the tax rates. These increased tax rates will increase the tax burden on the people paying taxes.
This, in turn, … taxable income.	This increased burden encourages more people to evade taxes.

PRE-THINKING

First of all, what vicious cycle is the author talking about?

The author says that evasion of income tax by some people makes the lawmakers to increase the taxes to make up for the losses caused. Increased tax rates will make more people to evade the taxes. This will motivate lawmakers to increase the taxes even more and so on. Hence, the author concludes that when people evade taxes, a vicious cycle starts.

Think about it. There are two links in this cycle, which keep repeating themselves.

Increased Taxes -> More evasion of taxes -> Increased Taxes -> More evasion -> so on...

Now, the question stem asks us to find a statement which is required for the vicious cycle to result or, in other words, an assumption in the author's argument which details out the vicious cycle.

Now, this cycle can be broken if any of the two links is broken. For example: If the laws are stringent enough that they penalize tax evaders heavily and the existing systems in the country can find tax evaders, then in such a case, raising the tax rates won't likely result in more people resorting to tax evasion.

Now, for the vicious cycle to result, the above situation should not hold, or in other words, the below statement should hold:

The existing taxpayers are not sufficiently deterred by the present tax evasion laws in the country.

With this understanding, let us move on to the option choice analysis.

ANALYSIS OF OPTION STATEMENTS

A. An increase in tax rates tends to function as an incentive for taxpayers to try to increase their pretax incomes.	If an increase in tax rates can possibly lead to an increase in the pretax incomes, then most likely the income gained by the government from the taxes will also increase and therefore the government most probably won't increase the tax rates again. So, the vicious cycle probably won't result. So, this option is opposite of what we are looking for in the correct option. So this isn't the correct option.
B. Some methods for detecting tax evaders, and thus recovering some tax revenue lost through evasion, bring in more than they cost, but their success rate varies from year to year.	The cost effectiveness and variation in the success rates of methods of detecting tax evasion is completely irrelevant to the argument. So this is an incorrect option.
C. When lawmakers establish income tax rates in order to generate a certain level of revenue, they do not allow adequately for revenue that will be lost through evasion.	This is the correct answer. If this statement is negated i.e. if the law makers allow for adequate revenue decrease in the initial establishment of income tax rates, then the lawmakers will not increase taxes because of increased evasion. In such a case, a link in the vicious cycle is broken and, therefore, the cycle will not result.
D. No one who routinely hides some taxable income can be induced by a lowering of tax rates to stop hiding such income unless fines for evaders are raised at the same time.	The argument isn't concerned about how to induce the tax evaders to pay taxes. The argument is concerned with whether tax evasion or increased taxes lead to a vicious cycle. So, this option is incorrect.
E. Taxpayers do not differ from each other with respect to the rate of taxation that will cause them to evade taxes.	Even if this statement does not hold i.e. taxpayers actually differ from each other in the given respect, it does not impact the vicious cycle at all. The working of the cycle (tax evasion -> increased taxes) does not require all the tax payers to behave similarly.

	So this is an incorrect option.

VERBAL REVIEW 2ND ED. – QUESTION NO.76

Generally scientists enter their field ...

The explanation offered above for the low esteem in which scientific popularizers are held by research scientists assumes that

A. serious scientific research is …
B. research scientists tend not …
C. a scientist can become …
D. research scientists believe that …
E. no important new research …

SOLUTION

PASSAGE ANALYSIS

Generally scientists enter their field … with similar motivation.	In this statement the author mentions that the general motivation of scientists while entering their field is to do important new research. The author also states that these scientists accept people with similar motivation as their colleagues.
Therefore, when any scientist … regarded as a true colleague.	Here the author uses the previous statement as an explanation for why most scientists look down upon a scientist who wins renown as an expounder of science to general audiences. These scientists stop considering the popular scientist as a true colleague.

PRE-THINKING

Our task in this question is to complete the statement present below the given argument. This statement seeks to establish the assumption behind the author's cited explanation for why scientific popularizers are looked down on by other scientists. In order to find the author's assumption, let's analyze how the author correlates the two situations:

Situation: Other scientists cease regarding any scientist who wins renown as an expounder of science to general audiences as a true colleague.
Reason: These scientists only accept as colleagues such scientists who, like they, are motivated do important new research.

From the above analysis, it becomes rather apparent that the author assumes that:

- Scientists consider "winning fame as an expounder of science" as incompatible with the goal of "doing important new research".

Unless the above assumption is true, the author cannot cite the motivation of scientists to do important new research as a reason for looking down on scientific popularizers. This is because, in an alternate scenario a scientist who wins fame could just as well be motivated to do new research as the ones who do not become famous as expounders of science in general public are. The author's logic or conclusion will not hold true in such a scenario. With this understanding in mind, let's evaluate the given answer choices.

ANALYSIS OF OPTION STATEMENTS

A. serious scientific research is …	This is not the correct answer. In the argument, the author is not concerned with how serious scientific research is conducted. The focus is on the author's cited reason for the reaction given by other scientists to a scientific popularizer and the motivation of true colleagues. Since choice A fails to establish a link between the two, it is not the assumption made by the author.
B. research scientists tend not …	This is not the correct answer as it offers a reason different from the one cited by the author for why research scientists have disregard for those scientists who win fame. If anything, choice B undermines the validity of the explanation proposed by the author. Hence, it cannot be the underlying assumption of the argument.
C. a scientist can become …	This option is incorrect. For the author's explanation, the exact stage at which a scientist becomes a popularizer (whether before or after important research) is not important. The author clearly states that other scientists stop treating a scientist as a true colleague **once** he/she becomes a popularizer.
D. research scientists believe that …	This indeed is the correct answer and is very close to the assumption we discussed in the pre-thinking phase. As discussed then, the author pitches that the qualifying criterion for being accepted as a colleague is negated when a scientist becomes a famous expounder of science in general public. Therefore, the author assumes that the criterion (to do important new research) and such fame acquired by a scientist are incompatible with each other.
E. no important new research …	Choice E is incorrect as it talks about people who are not scientists. The passage, however, is only concerned with the scientist fraternity. Clearly, this option is irrelevant to the argument at hand.

GMAT PREP – AGRICULTURAL SOCIETIES

Agricultural societies cannot exist without staple crops. Several food plants, such as kola and okra, are known to have been domesticated in western Africa, but they are all supplemental, not staple, foods. All the recorded staple crops grown in western Africa were introduced from elsewhere, beginning, at some unknown date, with rice and yams.

Therefore, discovering when rice and yams were introduced into western Africa would establish the earliest date at which agricultural societies could have arisen there.

Which of the following is an assumption on which the argument depends?

A. People in western Africa did not develop staple crops that they stopped cultivating once rice and yams were introduced.
B. There are no plants native to western Africa that, if domesticated, could serve as staple food crops.
C. Rice and yams were grown as staple crops by the earliest agricultural societies outside of western Africa.
D. Kola and okra are better suited to growing conditions in western Africa than domesticated rice and yams are.
E. Kola and okra were domesticated in western Africa before rice and yams were introduced there.

SOLUTION

PASSAGE ANALYSIS

Agricultural societies cannot exist without staple crops.	The first statement says that Staple crops are necessary for the existence of agricultural societies.
Several food plants, such as kola and okra, are known to have been domesticated in western Africa, but they are all supplemental, not staple, foods.	This is a simple factual statement. It says that many food plants were known to have been domesticated in western Africa. However, none of these food plants were staple crops. All the food plants domesticated in western Africa are supplemental.
All the recorded staple crops grown in western Africa were introduced from elsewhere, beginning, at some unknown date, with rice and yams.	This is again a factual statement. It says that all the staple crops that were recorded to have been grown in western Africa were actually introduced from some other place. Records indicate that rice and yams are the first known staple crops to be introduced in western Africa. However, the exact date of this introduction is unknown.

Therefore, discovering when rice and yams were introduced into western Africa would establish the earliest date at which agricultural societies could have arisen there.	Based on the previous information, the author now concludes that finding out when rice and yams were introduced in western Africa will help in finding out the earliest date at which agricultural societies could have arisen.

PRE-THINKING

The question stem asks us to find an assumption made by the author in the argument while he arrived at the conclusion. In other words, we need to find a piece of information which is not given in the argument but is still considered as true by the author.

Let us first look at the line of reasoning presented by the author. This will help us in pre-thinking some assumptions.

The author starts off by saying that "agricultural societies **cannot** exist without staple crops".

He further presents two facts. He says that although many food crops were known to have been domesticated in western Africa, none of them are actually staple crops.

He also says that all the staple crops, so far recorded to have been grown in western Africa, were actually brought here from some other places and that the earliest known staple crops to be brought to Africa are rice and yams.

So the author concludes that knowing when rice and yams were brought to western Africa would help in establishing the earliest possible date when agricultural societies could have developed in western Africa.

So the author's argument is as follows. All the records indicate that staple crops were first brought from somewhere else. Since staple crops are essential for the existence of agricultural societies, knowing when the **first known staple crops** were brought to Africa will help in knowing when agricultural societies might have arisen.

If you observe the entire line of reasoning, you'll see that the author has been referring to the recorded staple crops or crops that are known to have grown in western Africa.

Let us now ask ourselves the following. What if the records do not capture the entire agricultural history of western Africa?

For example, the records could have captured the western African history only up to 1000 B.C. and no records are available for events before that date.

Then may be, there could have been other staple crops that were brought into western Africa many years before 1000 B.C. but later on abandoned because of some reason. In this case, knowing when rice and yams were introduced into western Africa won't help establish the earliest date of the rise of agricultural societies.

Also, staple crops could have been developed in western Africa itself early on. Later on they could have been abandoned because of some reasons. Even if this were true, then knowing the date of

introduction of rice and yams won't help in establishing the earliest date of rise of agricultural societies.

Therefore either one of the above, if true, breaks the conclusion of the argument that "*discovering when rice and yams were introduced into western Africa would establish the earliest date at which agricultural societies could have arisen there.*"

So a couple of assumptions made by the author are:

i. No other staple crops were brought into western Africa, which were later on abandoned before the introduction of rice and yams.
ii. Staple crops, which the records couldn't indicate, were not developed in western Africa before the introduction of rice and yams.

With this understanding in mind, let us move on to the option choice analysis.

ANALYSIS OF OPTION STATEMENTS

A. People in western Africa did not develop staple crops that they stopped cultivating once rice and yams were introduced.	This actually seems to be a valid assumption because if other staple crops were actually developed before the introduction of rice and yams, then agricultural societies could have existed even before the introduction of rice and yarn. In such a case, knowing the introduction date of rice and yams might not help in establishing the date of rise of agricultural societies and this would, thus, break down the conclusion. So this option is a valid assumption in the argument and is the correct option.
B. There are no plants native to western Africa that, if domesticated, could serve as staple food crops.	We are not concerned about the plants that are present in western Africa and that could be domesticated into staple food crops. The argument is concerned only about whether or not knowing about the introduction date of rice and yams would help us in establishing the date of rise of agricultural societies. The mere presence of other crops currently in the region is irrelevant to the argument.
C. Rice and yams were grown as staple crops by the earliest agricultural societies outside of western Africa.	Whether rice and yams were grown as staple crops or supplement crops outside western Africa doesn't really affect the argument. We were already given in the argument that rice and yams were staple crops in western Africa and that they were introduced from outside. Whether or not rice and yams were staple

	crops outside is irrelevant to the argument. So this is an irrelevant option.
D. Kola and okra are better suited to growing conditions in western Africa than domesticated rice and yams are.	The conclusion of the argument is that knowing the introduction date of rice and yams will help in establishing the earliest possible date of rise of agricultural societies. This option, however, doesn't affect the conclusion. We are concerned about staple crops in the argument since agricultural societies cannot exist without staple crops. We are already given that kola and okra are not staple crops and so this option is irrelevant.
E. Kola and okra were domesticated in western Africa before rice and yams were introduced there.	We are concerned about staple crops in the argument since agricultural societies cannot exist without staple crops. We are already given that kola and okra are not staple crops and so this option is irrelevant.

GMAT PREP – RDS TECHNOLOGY

Radio stations with radio data system (RDS) technology broadcast special program information that only radios with an RDS feature can receive. Between 1994 and 1996, the number of RDS radio stations in Verdland increased from 250 to 600. However, since the number of RDS-equipped radios in Verdland was about the same in 1996 as in 1994, the number of Verlanders receiving the special program information probably did not increase significantly.

Which of the following is an assumption on which the argument depends?

A. Few if any of the RDS radio stations that began broadcasting in Verdland after 1994 broadcast to people with RDS-equipped radios living in areas not previously reached by RDS stations.
B. In 1996 most Verdlanders who lived within the listening area of an RDS station already had a radio equipped to receive RDS.
C. Equipping a radio station with RDS technology does not decrease the station's listening area.
D. In 1996 Verlanders who did not own radios equipped to receive RDS could not receive any programming from the RDS radio stations that began broadcasting in Verdland after 1994.
E. The RDS radio stations in Verdland in 1996 did not all offer the same type of programming.

SOLUTION

PASSAGE ANALYSIS

Radio stations with radio data system (RDS) technology broadcast special program information that only radios with an RDS feature can receive.	Key-points from this statement: 1. radio station with RDS technology broadcast special program info 2. these broadcasts of special program info can only be received by such radios that have an RDS feature
Between 1994 and 1996, the number of RDS radio stations in Verdland increased from 250 to 600.	Key-points from this statement: 1. there is a place called Verdland 2. in Verdland: a. number of radio stations with RDS technology in 1994 =250 b. number of radio stations with RDS technology in 1996= 600
However, since the number of RDS-equipped radios in Verdland was about the same in 1996 as in 1994, the number of Verlanders receiving the special program information probably did not increase significantly.	In this statement the author concludes that irrespective of the above statistic: the number of Verlanders receiving the special program info probably did not increase significantly between 1994 and 1996 Reason for the above drawn conclusion: = the number of RDS-equipped radios in Verdland was about the same in 1996 as in 1994.

PRE-THINKING

The question stems asks us to identify the assumption on which the given argument is based. In order to do so, let's look at the author's conclusion with respect to the other information given in the passage:

Author's conclusion:	the number of Verlanders receiving the special program info probably did not increase significantly between 1994 and 1996
Author's reason:	the number of RDS-equipped radios in Verdland was about the same in 1996 as in 1994
Other information:	the number of RDS radio stations in Verdland increased from 250 to 600 between 1994 and 1996

The author, while drawing the conclusion, has factored in the fact about the number of Verdlanders who owned RDS equipped radio sets in 1996 (when compared to 1994). On the basis of this increase, the author has concluded that:

Not many new RDS radio owners = hardly any increase in number of people receiving special program info.

However, increase in people receiving special program info = new owners under coverage area + old owners who now have coverage.

So, for the author's conclusion to hold true, we need to take care of the second possible component of the increase as well. So, essentially the author has to factor in that:

- *there hasn't been a significant increase in the number of people who now receive special program info and who did not receive the signals before the new radio stations were installed*

The author has to assume the above statement because otherwise if the new RDS stations had significantly increased the coverage to such RDS equipped radio owners who earlier weren't getting signals, then these people could have accounted toward increasing the number of Verdlanders receiving the special program info.

Probably the simplest analogy to the hypothetical situation created by negating the above assumption will be a scenario in which people possessed mobile hand-sets but did not have any network provider in their area. Now with a boom in service providers one could argue that even with the same number of handsets owners, more people are now using cellular services. These new users are the people who earlier had handsets but no service providers.

With this understanding in mind, let's attack the answer choices.

ANALYSIS OF OPTION STATEMENTS

A. Few if any of the RDS radio stations that began broadcasting in Verdland after 1994 broadcast to people with RDS-equipped radios living in areas not previously reached by RDS stations.	This is indeed the correct answer. It is very similar to our pre-thought assumption. To understand this assumption, consider the following equation: RDS equipped radio owners in 1994 = (a) people who receive signal + (b) people who didn't receive signals Therefore, as per the assumption stated in choice A, by 1996 there hasn't been any significant conversion of people from group (b) to group (a) above. Clearly, this piece of new information helps the author's conclusion to be more validly drawn as we have discounted a possible source of increase in people who receive special program info. Hence, answer choice A is the correct answer.
B. In 1996 most Verdlanders who lived within the listening area of an RDS station already had a radio equipped to receive RDS.	This choice is incorrect. For the author's conclusion to be true, the statement given in answer choice B does not have to be assumed. It doesn't really matter whether most Verdlanders who lived within the listening area of an RDS station already had a radio equipped to receive RDS or a few of such Verdlanders owned RDS equipped radios. What matters is how many of these owners actually received signals in 1996 compared to 1994. Hence, answer choice B does NOT help in drawing the author's conclusion more validly.
C. Equipping a radio station with RDS technology does not decrease the station's listening area.	This answer choice is incorrect and irrelevant. This answer choice only says that the listening area of an RDS equipped radio station is not less than the corresponding radio station. However, the argument is not at all concerned or impacted by the differences in the listening areas of these two types of stations.
D. In 1996 Verlanders who did not own radios equipped to receive RDS could not receive any programming from the RDS radio stations that began broadcasting in Verdland after 1994.	This answer choice is incorrect on the following account: it talks about a completely different category of people - those who did not have RDS equipped radio in 1996. The argument is only concerned with those people who had RDS equipped radio by 1996 and who could receive signals

E. The RDS radio stations in Verdland in 1996 did not all offer the same type of programming.	This answer choice is completely irrelevant to the argument and hence is incorrect. The author hasn't implied any relationship between the type of programming and the number of people receiving special program information in Verdland. Hence, option E is incorrect.

GMAT PREP – CIGARETTES

In the year following an 8-cent increase in the federal tax on a pack of cigarettes, sales of cigarettes fell 10%. In contrast, in the year prior to the tax increase, sales had fallen 1%. The volume of cigarette sales is therefore strongly related to the after-tax price of a pack of cigarettes.

The argument above requires which of the following assumptions?

A. During the year following the tax increase, the pretax price of a pack of cigarettes did not increase by as much as it had during the year prior to the tax increase.
B. The one percent fall in cigarette sales in the year prior to tax increase was due to a smaller tax increase.
C. The pretax price of a pack of cigarettes gradually decreased throughout the year before and the year after the tax increase.
D. For the year following the tax increase, the pretax price of a pack of cigarettes were not eight or more cents lower than it had been the previous year.
E. As the after-tax price of a pack of cigarettes rises, the pretax price also rises.

SOLUTION

PASSAGE ANALYSIS

In the year following an 8-cent increase in the federal tax on a pack of cigarettes, sales of cigarettes fell 10%.	From this statement, we get to know that: 1. There was an eight cent increase in a particular tax levied on a pack of cigarettes. 2. In the year following the above mentioned tax increase, the sales of cigarettes fell by 10%.
In contrast, in the year prior to the tax increase, sales had fallen 1%.	This statement talks about the year prior to the tax increase. In that year, sales of cigarettes had fallen by 1%.
The volume of cigarette sales is therefore strongly related to the after-tax price of a pack of cigarettes.	On the basis of the above statements, the author concludes that volume of cigarette sales is strongly related to the after-tax price of a pack of cigarettes.

PRE-THINKING

Since this is an assumption question, the pre-thinking phase is absolutely crucial here. If you read the argument carefully, you'll notice that the author has linked three things:

(a)8-cent tax increase (b) after tax price of a pack of cigarettes (c) volume of cigarette sales

According to the author, elements (b) and (c) above have an inverse relationship: increase in after tax-price leads to decrease in cigarette sales. However, for the author to validate this relationship in this particular case, he/she must assume a link between the 8-cent increase and an increase in after-tax price. After all, they are not the same thing! For instance, it is possible that although there

was an 8-cent increase in the federal tax levied , at the same time there was an industry-wide 30 cent decrease in the per pack manufacturing cost of cigarettes and the cigarette manufacturers passed on this benefit to the cigarette sellers, who passed it on to the consumers of the product. In such a scenario, other things being constant, the increase in federal tax would have been offset by the decrease in the manufacturing cost. And the net result would have been- no increase in the after tax price. In other words, the author assumes that:

- The eight cent increase in federal tax on a pack of cigarettes increased the after-tax price of a pack of cigarettes.

With the above analysis in mind, let's evaluate the given answer choices.

ANALYSIS OF OPTION STATEMENTS

A. During the year following the tax increase, the pretax price of a pack of cigarettes did not increase by as much as it had during the year prior to the tax increase.	If we negate this statement, we get that the pretax price of cigarettes increased by as much after the tax increase as it had during the year before the tax increase. This essentially means that the increase in pretax price was the same over the two years. So, if the increase in pretax price was same and yet the sales fell significantly more after the introduction of 8-cent tax, it only indicates that 8-cents played a role in the decline in sales and hence, the volume of sales is related to the after-tax price of cigarettes. So, we see that the negation of option A rather strengthens the conclusion. Therefore, option A cannot be an assumption and hence, is incorrect.
B. The one percent fall in cigarette sales in the year prior to tax increase was due to a smaller tax increase.	This option is incorrect. While the information given in choice B may strengthen the author's logic by supporting a general link between after-tax price and sales of cigarettes, it is not a must be true statement for the author's conclusion, which does not depend on the reason for the fall in cigarette sales. The conclusion will hold even if the fall in cigarette sales was because of slight increase in pretax price.
C. The pretax price of a pack of cigarettes gradually decreased throughout the year before and the year after the tax increase.	Option C at best weakens the author's argument and hence cannot be a contender for the correct assumption. If we assume this choice, then it gives us reasons to believe that the 8-cent increase in federal tax may not have led to any increase in the after-tax price of a pack of cigarettes as the decrease in the pre-tax price could have offset this increase. Clearly,

	option C walks away from the author's logic and hence is not the right answer.
D. For the year following the tax increase, the pretax price of a pack of cigarettes were not eight or more cents lower than it had been the previous year.	This is the correct option. It is on similar lines as our pre-thought assumption. As analyzed then, for the author's argument to hold, it has to be assumed that the 8-cent tax increase increased the after-tax price of the pack. This would have been only possible, if the pre-tax price did not decrease by eight cents or more because if it did, it could have offset the tax increase.
E. As the after-tax price of a pack of cigarettes rises, the pretax price also rises.	The author does not have to assume the statement given in choice E to validate his/her conclusion. As seen in choice D, the pre-tax price should not decrease by the same amount or more for the author's conclusion to hold. So even if the pre-tax price remained the same or decreased by an amount lower than 8-cents (the increase in the tax), the author's argument would still be valid. Hence, the author does not have to assume any necessary increase in the pre-tax price.

GMAT PREP – HAZARDOUS WASTE

In response to mounting public concern, an airplane manufacturer implemented a program with the well-publicized goal of reducing by half the total yearly amount of hazardous waste generated by its passenger-jet division. When the program began in 1994, the division's hazardous waste output was 90 pounds per production worker; last year it was 40 pounds per production worker. Clearly, therefore, charges that the manufacturer's program has not met its goal are false.

Which of the following is an assumption on which the argument depends?

A. The amount of nonhazardous waste generated each year by the passenger-jet division has not increased significantly since 1994.
B. At least as many passenger jets were produced by the division last year as had been produced in 1994.
C. Since 1994, other divisions in the company have achieved reductions in hazardous waste output that are at least equal to that achieved in the passenger-jet division.
D. The average number of weekly hours per production worker in the passenger-jet division was not significantly greater last year than it was in 1994.
E. The number of production workers assigned to the passenger-jet division was not significantly less in 1994 than it was last year.

SOLUTION

PASSAGE ANALYSIS

In response to mounting public concern, an airplane manufacturer implemented a program with the well-publicized goal of reducing by half the total yearly amount of hazardous waste generated by its passenger-jet division	This statement tells us about an airplane manufacturer's response to mounting public concern. The company implemented a program with the goal, which was well-publicized, of reducing by half the annual amount of hazardous waste generated by its passenger-jet division
When the program began in 1994, the division's hazardous waste output was 90 pounds per production worker; last year it was 40 pounds per production worker	This statement says that the passenger-jet division produced 90 pounds of hazardous waste per worker in 1994, when the program was introduced. Last year, this amount was 40 pounds per worker
Clearly, therefore, charges that the manufacturer's program has not met its goal are false.	Based on the given information, the author concludes that it is incorrect to say that the program has not met its goal.

PRE-THINKING

The question stem asks us to identify an assumption on which the argument depends. From the passage analysis, we have identified that the author's conclusion is that the manufacturer's

program has met its goal. In other words, the author concludes that the passenger-jet division's total annual production of hazardous materials has decreased by half.

In arriving at this conclusion, what does the author assume? Let's closely examine the facts on which the author's reasoning is based.

1. In 1994, the division's hazardous waste production was 90 pounds per worker.
2. Last year, the division's hazardous waste production was 40 pounds per worker.

Note that the author does not provide any information about the total amount of hazardous waste generated by the division in 1994 or last year.

Let's say that in 1994, the division had 100 production workers. So the total amount of waste in 1994 was 100 x 90 = 9000 pounds. Let's say that last year, the division still had 100 workers. So, the total waste generated would be 100 x 40 = 400 pounds. In this case, the amounted of waste generated has reduced considerably and the author's conclusion is right.

However, what if there has been a significant increase in the number of workers since 1994? Let's say the division had 225 workers last year. In this case, the total amount of waste generated would be 225 x 40 = 9000 pounds. In this case, the total amount of waste generated is the same as it was in 1994, but the amount per worker has decreased because there are many more workers than there were in 1994. In such a scenario, the author's conclusion is incorrect. So, a significant reduction in the amount of waste generated per worker does not conclusively prove that the program has met its goal.

So, for the author's argument to be valid, the number of production workers in the division should not have increased significantly. Let's state this assumption clearly:

The number of production workers in the passenger-jet division did not increase significantly between 1994 and last year.

Let's put this assumption through the negation test. Here is the negated version of the assumption:

The number of production workers in the passenger-jet division increased significantly between 1994 and last year.

If the number of production workers increased significantly, then the total amount of waste might not have decreased even when there was a decline in the amount of waste generated per worker. If the assumption is negated, the author's argument falls apart. So, this is an assumption made by the author in arriving at the given conclusion.

ANALYSIS OF OPTION STATEMENTS

Which of the following is an assumption on which the argument depends?

A. The amount of nonhazardous waste generated each year by the passenger-jet division has not increased significantly since 1994.	The amount of nonhazardous waste generated by the passenger-jet division has no relevance to the author's conclusion that the amount of hazardous waste generated by the division has

	decreased. The goal of the program was only to reduce the hazardous waste.
B. At least as many passenger jets were produced by the division last year as had been produced in 1994.	The number of passenger jets produced by the division need not impact the amount of hazardous waste generated by the division. Even if the number of passenger jets produced has not decreased, the amount of hazardous waste generated could have decreased, remained the same, or increased, based on the procedures followed in the process of production. Even if this statement is true, it provides no support for the author's reasoning and cannot be an assumption made by the author.
C. Since 1994, other divisions in the company have achieved reductions in hazardous waste output that are at least equal to that achieved in the passenger-jet division.	The program referred to in the passage is pertinent only to the passenger-jet division. The passage does not tell us anything about other divisions. Also, this choice only confirms that the passenger-jet division achieved some amount of reduction in its hazardous waste output, and not that it achieved 50 percent reduction, which was the goal of the program. The statement compares the reduction in hazardous waste output by the production division to that of other divisions, which does not support the conclusion and is not necessary for the conclusion to be true.
D. The average number of weekly hours per production worker in the passenger-jet division was not significantly greater last year than it was in 1994.	The number of hours per production worker does not tell us anything about the total number of production workers. This choice only tells us about the average number of hours that the production workers put in. It is not required for the argument to hold. Even if the average number of working hours per workers has not changed significantly, this does not support the conclusion that the program has met its goal.
E. The number of production workers assigned to the passenger-jet division was not significantly less in 1994 than it was last year.	This choice is in line with our pre-thinking. The author's conclusion is based on the assumption that the number of production workers in the passenger-jet division was not significantly less in 1994 than it was last year. If this statement is negated, the author's argument falls apart. So, this choice is the correct answer.

GMAT PREP – NUBIANS

The ancient Nubians inhabited an area in which typhus occurs, yet surprisingly few of their skeletons show the usual evidence of this disease. The skeletons do show deposits of tetracycline, an antibiotic produced by a bacterium common in Nubian soil. This bacterium can flourish on the dried grain used for making two staples of Nubian diet, beer and bread. Thus, tetracycline in their food probably explains the low incidence of typhus among ancient Nubians.

Which of the following is an assumption on which the argument relies?

A. Infectious diseases other than typhus to which the ancient Nubians were exposed are unaffected by tetracycline.
B. Tetracycline is not rendered ineffective as an antibiotic by exposure to the process involved in making bread and beer.
C. Typhus cannot be transmitted by ingesting bread or beer contaminated with the infectious agents of this disease.
D. Bread and beer were the only items in the diet of the ancients Nubians which could have contained tetracycline.
E. Typhus is generally fatal.

SOLUTION

PASSAGE ANALYSIS

The ancient Nubians inhabited an area in which typhus occurs, yet surprisingly few of their skeletons show the usual evidence of this disease.	The first statement gives us some information about a group of people called the Nubians, who lived in ancient times. The area in which they lived is one in which the disease typhus is known to occur. However, it is surprising to see that only a few of their skeletons show the usual signs of the disease.
The skeletons do show deposits of tetracycline, an antibiotic produced by a bacterium common in Nubian soil.	This part tells us what the skeletons do show. The skeletons show evidence of a particular antibiotic called tetracycline. This antibiotic is generated by a bacterium that is commonly found in the soil of the region.
This bacterium can flourish on the dried grain used for making two staples of Nubian diet, beer and bread.	This part tells us that two of the regular items that the Nubians consumed, beer and bread, are made out of dried grain that the bacterium thrives on.
Thus, tetracycline in their food probably explains the low incidence of typhus among ancient Nubians.	This part is the author's conclusion. Based on the given information, the author concludes that since the Nubians regularly consumed tetracycline, this probably explains why so few of them suffered from typhus.

PRE-THINKING

Which of the following is an assumption on which the argument relies?

The question stem asks us to find an assumption on which the argument depends.

Let's first understand the argument carefully.

The author presents us with some information.

1. It is surprising that so few Nubians appear to have suffered from typhus, given that they lived in a region in which the disease occurs.
2. Their skeletons show evidence of tetracycline, an antibiotic produced by a bacterium.
3. This bacterium thrives on the dried grains used to produce beer and bread, which were both on the Nubians' staple diet.

Based on this information, the author concludes that the tetracycline in the Nubians' diet is the probable reason that there was such a low incidence of typhus among them.

What are the underlying assumptions of the author's argument? Note that the author says that few of the Nubians' skeletons show the usual evidence of typhus. But what if there was a particular strain of the disease that did not leave the usual evidence? There could have been a kind of typhus existing in ancient times that did not leave any of the typical evidence that typhus usually leaves behind. If so, the Nubians could have suffered from this specific strain of the disease, but scientists have been unable to identify it based on an examination of their skeletons. So, the author assumes that the Nubians did not suffer from a kind of typhus that did not leave the usual evidence.

Also, another assumption is that the Nubians did not suffer from a specific strain of the disease that was not affected by tetracycline. If this was not the case, then the tetracycline consumed by the Nubians was probably not the cause that very few of them appeared to have suffered from the disease.

Note that these are only two possible assumptions. There can be other assumptions too. Before selecting the right answer, it is important to check if it's a 'must be true' statement. With this pre-thinking in mind, let's examine the answer choices.

ANALYSIS OF OPTION STATEMENTS

A. Infectious diseases other than typhus to which the ancient Nubians were exposed are unaffected by tetracycline.	This choice is incorrect. It refers to diseases other than typhus, which the argument is not concerned with. Even if other diseases that the Nubians suffered from were resistant to the antibiotic, this does not mean that the typhus they suffered from was also resistant to it.
B. Tetracycline is not rendered ineffective as an antibiotic by exposure to the process involved in making bread and beer.	This is the correct answer. The Nubians regularly consumed beer and bread, which were made from dried grains that the bacterium flourished on. If the process

	used to make bread and beer out of the grains affected the tetracycline in a way that made it ineffective as an antibiotic, then it was probably not the reason that the usual evidence of typhus was not found on most of the skeletons. So, if this option statement is not true, the argument breaks down. Therefore, this option is a must be true statement and correctly identifies an assumption made by the author.
C. Typhus cannot be transmitted by ingesting bread or beer contaminated with the infectious agents of this disease.	This option is incorrect. The author is not concerned with how typhus can be transmitted. So, this choice is not relevant.
D. Bread and beer were the only items in the diet of the ancients Nubians which could have contained tetracycline.	This choice is incorrect. Even if there were other food items that could have contained tetracycline, this does not impact the author's conclusion.
E. Typhus is generally fatal.	This choice is incorrect. Typhus need not be a fatal disease for the author's argument to hold. If we negate this choice and say that typhus is not usually a fatal disease, the author's conclusion is not affected. Also, the argument is concerned with the probable cause that most of the Nubians did not appear to have suffered from typhus. It is not concerned with whether typhus is fatal. So, this choice is not relevant since it has no bearing on the author's conclusion.

GMAT PREP – SEPPHORIS

Excavations of the Roman city of Sepphoris have uncovered numerous detailed mosaics depicting several readily identifiable animal species: a hare, a partridge, and various Mediterranean fish. Oddly, most of the species represented did not live in the Sepphoris region when these mosaics were created. Since identical motifs appear in mosaics found in other Roman cities, however, the mosaics of Sepphoris were very likely created by traveling artisans from some other part of the Roman Empire.

Which of the following is an assumption on which the argument depends?

A. The Sepphoris mosaics are not composed exclusively of types of stones found naturally in the Sepphoris area.
B. There is no single region to which all the species depicted in the Sepphoris mosaics native
C. No motifs appear in the Sepphoris mosaics that do not also appear in the mosaics of some other Roman city
D. All of the animal figures in the Sepphoris mosaics are readily identifiable as representation of known species
E. There was not a common repertory of mosaic designs with which artisans who lived in various parts of the Roman empire were familiar

SOLUTION

PASSAGE ANALYSIS

Excavations of the Roman city of Sepphoris have uncovered numerous detailed mosaics depicting several readily identifiable animal species: a hare, a partridge, and various Mediterranean fish.	The first statement tells us about excavations of a Roman city. During these excavations, several intricate mosaics were discovered. These mosaics showed many animal species that could easily be identified.
Oddly, most of the species represented did not live in the Sepphoris region when these mosaics were created.	This part says that there is something strange about the pictures. Most of the animals shown in them did not inhabit the region at the time the mosaics were made.
Since identical motifs appear in mosaics found in other Roman cities, however, the mosaics of Sepphoris were very likely created by traveling artisans from some other part of the Roman Empire.	This part says that identical pictures have been found in other Roman cities. So, the author concludes that the Sepphoris mosaics were most probably made by traveling artisans from other regions of the Roman Empire.

PRE-THINKING

Which of the following is an assumption on which the argument depends?

The question stem asks us to find an assumption on which the argument depends.

Let's first understand the argument carefully.

The author presents us with some information.

1. Excavations in Sepphoris have discovered some mosaics with pictures of animals that can be easily identified.
2. Strangely, most of these animals did not live in the region at the time the mosaics were made.
3. Identical pictures have been found on mosaics from other parts of the empire.

Based on this information, the author concludes that the mosaics found in Sepphoris were most probably created by artisans from other parts of the empire who had traveled to Sepphoris.

So, the author believes that most of the mosaics found in Sepphoris were not made by artisans from Sepphoris, since the animals depicted in them did not live in the Sepphoris region at the time. One assumption made by the author is that the local artisans in Sepphoris did not imitate the motifs on mosaics that traveling artisans brought with them. Even if the artisans of Sepphoris had not actually seen most of the animals on the mosaics, they could have learned about the existence of such animals from looking at artwork brought by artists from other regions.

Similarly, the author also assumes that artists from Sepphoris most probably did not travel to other regions of the empire, where they could have seen the animals that did not live in the Sepphoris region. This assumption is also required since if the artists from Sepphoris could have travelled and seen such animals, then the author's logic would break down. The author's logic is based on the reasoning that since these animals were not found in Sepphoris, the local artists did not know about them.

With this pre-thinking in mind, let's examine the answer choices.

ANALYSIS OF OPTION STATEMENTS

A. The Sepphoris mosaics are not composed exclusively of types of stones found naturally in the Sepphoris area.	This choice is incorrect. It strengthens the author's argument slightly, but it is not a 'must be true' statement. If the mosaics contain stones that are not found naturally in the Sepphoris region, this could strengthen the argument that the mosaics were made by artisans from other regions. However, this is not an assumption that the argument depends upon. Negating this statement does not destroy the author's argument. Traveling artisans could still have created the mosaics in Sepphoris from stones found naturally in Sepphoris. In such a case, the conclusion holds even when this option statement is negated.
B. There is no single region to which all the species depicted in the Sepphoris mosaics native	This choice is incorrect. The argument is only concerned with the fact that **most** of the animals shown in the mosaics

	were not found in Sepphoris. So, it is irrelevant whether there was a single region in which all the species were found.
C. No motifs appear in the Sepphoris mosaics that do not also appear in the mosaics of some other Roman city	This option is incorrect. The argument says that most of the represented species did not live in Sepphoris. So, there could have been some species shown in the mosaics that lived only in Sepphoris and appeared only in mosaics made in Sepphoris. So, this option is not a required statement for the given argument.
D. All of the animal figures in the Sepphoris mosaics are readily identifiable as representation of known species	This choice is incorrect. The author states that several of the animals depicted in the mosaics are easily identifiable. This does not mean that the author assumes that all the animals were easily identifiable. Besides, whether the animal figures in these mosaics are known or not doesn't really impact the conclusion that these mosaics were created by travelling artisans.
E. There was not a common repertory of mosaic designs with which artisans who lived in various parts of the Roman empire were familiar	This is the correct answer. Negating this statement destroys the author's argument. If there was a common source of designs that artisans could refer to, then the Sepphoris artisans could have seen this source and made the mosaics, even if they had not actually seen the animals that did not live in the area. So, if this statement is not true, our belief in the conclusion will break down. So, this statement is an assumption made by the author.

GMAT PREP – COUNTERFEITING

The general availability of high-quality electronic scanners and color printers for computers has made the counterfeiting of checks much easier. In order to deter such counterfeiting, several banks plan to issue to their corporate customers checks that contain dots too small to be accurately duplicated by any electronic scanner currently available; when such checks are scanned and printed, the dots seem to blend together in such a way that the word "VOID" appears on the check.

A questionable assumption of the plan is that:

A. In the territory served by the banks the proportion of counterfeit checks that are made using electronic scanners has remained approximately constant over the past few years.
B. Most counterfeiters who use electronic scanners counterfeit checks only for relatively large amounts of money
C. The smallest dots on the proposed checks cannot be distinguished visually except under strong magnification.
D. Most corporations served by these banks will not have to pay more for the new checks than for traditional checks.
E. The size of the smallest dots that generally available electronic scanners are able to reproduce accurately will not decrease significantly in the near future.

SOLUTION

PASSAGE ANALYSIS

The general availability of high-quality electronic scanners and color printers for computers has made the counterfeiting of checks much easier.	This statement tells us that the general availability of two items, high-quality electronic scanners and color printers for computers, has made the counterfeiting of checks much easier.
In order to deter such counterfeiting, several banks plan to issue to their corporate customers checks that contain dots too small to be accurately duplicated by any electronic scanner currently available; when such checks are scanned and printed, the dots seem to blend together in such a way that the word "VOID" appears on the check.	This statement tells us about a plan that several banks have made to discourage counterfeiting. The banks plan to issue checks with dots that are too small to be correctly copied by any scanner that is currently available. These tiny dots will blend together to spell the word 'void' when the checks are scanned and printed. So, the objective of the given plan is to identify forged checks with the help of the dots.

PRE-THINKING

The question stem asks us to identify a questionable assumption on which the plan depends. In other words, there is something that makes this plan weak—something that the banks have assumed that is a weak spot in the plan.

What does the plan depend upon? It depends on the fact that any electronic scanner currently unavailable cannot accurately duplicate the dots that the checks will contain. Note the use of the word "currently". If electronic scanners are going to get more sophisticated in the future, they may accurately be able to duplicate the dots on the checks. If the dots on the checks are accurately duplicated, they will not blend together and will not alert the bank that the check is counterfeit.

So, this argument depends on the following assumption:

Electronic scanners in the future will not be capable of accurately duplicating the dots on the checks.

Let's put this assumption through the negation test and see if it holds. This is the negated version of the assumption:

Electronic scanners in the future will be capable of accurately duplicating the dots on the checks.

If scanners can accurately duplicate the dots, the plan will not work. The negated version of the argument makes the argument fall apart. So, this is a valid assumption. It can also correctly be identified as a questionable assumption, since banks have overlooked upcoming technological developments that could interfere with the success of their plan.

ANALYSIS OF OPTION STATEMENTS

A. In the territory served by the banks the proportion of counterfeit checks that are made using electronic scanners has remained approximately constant over the past few years.	This choice is irrelevant to the success of the plan, since it does not depend on the proportion of checks that are forged. If we negate this statement and say that the proportion of forged checks has not remained constant, it does not affect the plan. So, this choice is not an assumption.
B. Most counterfeiters who use electronic scanners counterfeit checks only for relatively large amounts of money	This choice says that most forgers who use electronic scanners forge checks only for relatively large amounts of money. This choice has no bearing on the success of the plan, since the success of the plan does not depend on the amount of money that the checks are for.
C. The smallest dots on the proposed checks cannot be distinguished visually except under strong magnification.	The argument does not refer to whether the dots can be distinguished visually. The argument depends on the fact that the dots on the checks are too small to be accurately duplicated by any currently available scanner. It does not depend on the assumption that the checks will have to be visually inspected. So, whether the dots on the checks can be distinguished visually is irrelevant—the only relevant factor is that currently available scanners cannot correctly duplicate the dots when the checks are scanned and printed.

D. Most corporations served by these banks will not have to pay more for the new checks than for traditional checks.	This choice says that most corporations will not have to pay extra for the new checks. Let's negate this statement and see what happens. The negated statement would say that most corporations would have to pay extra for the new checks. In this scenario, some corporations may decide to keep using the old checks. If such checks are counterfeited, it will be because the corporations did not switch to the new checks—it will not be because the plan failed. The success of the plan does not depend on whether corporations will have to pay more for the new checks, but on the ability of electronic scanners to duplicate the dots.
E. The size of the smallest dots that generally available electronic scanners are able to reproduce accurately will not decrease significantly in the near future.	This choice is in line with our pre-thinking. The plan is based on the assumption that scanners in the future will not be able to correctly duplicate the dots. If this statement is negated and the size of the smallest dots scanners are able to reproduce does decrease significantly in the near future, then generally available scanners may be able to detect the dots and correctly duplicate them. If they are able to do so, the plan will fail. So, this choice is the correct answer.