# UNIT 1 NOTES

## INTRODUCTION:

Critical reasoning is all about identifying, analysing and solving problem systematically.

## FOUNDATION OF CRITICAL REASONING:

Critical reasoning involves the ability to actively and skillfully conceptualize, analyze, question and evaluate ideas and beliefs.

## PRINCIPLES OF CRITICAL REASONING

The 7 Basic Principles Of Critical Reasoning

Here are the basic things that you need to succeed of CR questions:

## 1. Understand the structure of an argument.

First, you must know how arguments are structures, so that you can know how to break them down into their core components. When we use the word argument, we don't mean a conversation where 2 people are shouting at each other. An argument in Critical Reasoning means any piece of text where an author puts forth a set of ideas and/or a point of view, and attempts to support it.

Every argument is made up of two basic parts:

- The conclusion (the point that the author is trying to make)

- The evidence (the support that the author offers for the conclusion)

Success on this section hinges on your ability to identify these parts of the argument. There is no general rule about where conclusion and evidence appear in the argument- the conclusion could be the first sentence, followed by the evidence, or it could be the last sentence, with the evidence preceding it.

**EXAMPLE**

Consider the stimulus (in other words, a passage):

The Brookdale Public Library will require extensive physical rehabilitation to meet the new building codes passed by the town council. For one thing, the electrical system is in adequate, causing the lights to flicker sporadically. Furthermore, there are too few emergency exits, and even those are poorly marked and sometimes locker.

Suppose that the author of this argument was allowed only one sentence to convey her meaning. Do you think she would waste her time with the following statement? Would she walk away satisfied that her main point was communicated?

The electrical system [at the Brookdale Public Library] is inadequate, causing the lights to flicker sporadically.

Probably not. Given a single opportunity, she would have to state the first sentence to convey her real purpose:

The Brookdale Public Library will require extensive physical rehabilitation….

That is the conclusion. If you pressed the author to state her reasons for making that statement, she would then cite the electrical and structural problems with the building. That is the evidence for her conclusion.

But does that mean that an evidence statement like, “The electrical system in inadequate” can’t be a conclusion? No, we’re just saying it’s not the conclusion for this particular argument. Every idea, every new statement, must be evaluated in the context of the stimulus in which it appears.

For the statement above to serve as the conclusion, the stimulus would be:

The electrical wiring at the Brookdale Public Library was installed over 40 years ago, and appears to be corroded in some places (evidence). An electrician, upon inspection of the system, found a few frayed wires as well as some blown fuses (evidence). Clearly, the electrical system at the Brookdale Public Library is inadequate (conclusion).

To succeed in Critical Reasoning, you have to be able to determine the precise function of every sentence in the stimulus. Use structural signals when attempting to isolate evidence and conclusion. Key words in the stimulus-such as because, for, since- usually indicate that evidence is about to follow, whereas therefore, hence, thus, and consequently usually signal a conclusion.

## 2. Preview the question.

Before you read the stimulus, look over the question. This will give you some idea about what you need to look for as you read. It gives you a jump on the question.

Suppose the question with the library argument above ask the following:

The author supports her point about the need for rehabilitation at the Brookdale library by citing which of the following?

If you were to preview this question stem before you read the stimulus, you would know what to look for in advance-namely, evidence, the "support" provided for the conclusion. Or if the question stem asked you to find an assumption on which the author is relying, you would know in advance that a crucial piece of the argument was missing, and you could think about that right off the bat.

Previewing the stem allows you to set the tone of your attack, and thus saves you time in the long run. As you'll soon see, this technique will come in especially handy when we discuss methods for the various question types.

## 3. Paraphrase the author's point.

After you read the stimulus, paraphrase the author's main argument to yourself. That is, restate the author's ideas in your own words. Frequently, the authors in Critical Reasoning say pretty simple things in complex ways. So if you mentally translate the verbiage into a simpler form, the whole thing should be more manageable.

In the library argument, for instance, you probably don't want to deal with the full complexity of the author's stated conclusion:

The Brookdale Public Library will require extensive physical rehabilitation to meet the new building codes just passed by the town council.

Instead, you probably want to paraphrase a much simpler point:

The library will need fixing-up to meet new codes.

Often, by the time you begin reading through the answer choices you run the risk of losing sight of the gist of the stimulus. So restating the argument in your own words will not only help you get the author's point in the first place, it will also help you hold on ot it until you've found the correct answer.

## 4. Judge the argument's persuasiveness.

You must read actively, not passively. Active readers are always thinking critically, forming reactions as they go along. They question whether the author's argument seems valid or dubious. Especially when you are asked to find flaws in the author's reasoning, it's imperative to read with a critical eye.

How persuasive is the argument about the library, let's ask? Well, it's pretty strong, because the evidence certainly seems to indicate that certain aspects of the library's structure need repair. But without more evidence about what the new building codes are like, we can't say for sure that the conclusion of this argument is valid. So this is a strong argument but not an airtight one.

Since part of what you're called on to do here is to evaluate arguments, don't let yourself fall into the bad habits of the passive reader-reading solely for the purpose of getting through the stimulus. Those who read this way invariably find themselves having to read the stimuli twice or even three times. Then they're caught short on time. Read the stimuli right the first time-with a critical eye and an active mind.

## 5. Answer the question being asked.

One of the most disheartening experiences in Critical Reasoning is to understand the author's argument full but then supply an answer to a question that wasn't asked. If you're asked for an inference supported by the argument, selecting the choice that paraphrases the author's conclusion will earn you no points. Neither will selecting a choice that looks vaguely like a summary of the author's evidence if you're asked for an assumption.

The classic example of this error occurs on “Strengthen/Weaken” questions. When you’re asked to strengthen or weaken an argument, you can be sure that there will be one, tow, even three answer choices that do the opposite of what’s asked. Choosing such a wrong choice is less a matter of failing to understand the argument than of failing to remember the task at hand.

The question stem will always ask for something very specific. It’s your job to follow the test makes’ line of reasoning to the credited response.

Also, be on the lookout for “reversers,” words such as not and except. These little words are easy to miss, but they change entirely the kind of statement you’re looking for among the choices.

## 6. Try to “prephrase” an answer.

This principle, which is really an extension of the last one, is crucial. You must try to approach the answer choices with at least a faint idea of what the answer should look like. That is, “prephrase” the answer in your own mind before looking at the choices. This isn’t to say you should ponder the question for minutes-it’s still a multiple-choice test, so the right answer is on the screen. Just get in the habit of framing an answer in your head.

Once you have prephrased, scan the choices. Sure, the correct choice on the exam will be worded differently and will be more fleshed out than your vague idea. But if it matches your thought, you’ll know it in a second. And you’ll find that there’s no more satisfying feeling in Critical Reasoning than prephrasing correctly, and then finding the correct answer quickly and confidently.

Continuing with the library situation, suppose you were asked:

The author’s argument depends on which of the following assumptions about the new building codes?

Having thought about the stimulus argument, you might immediately come up with an answer-here that the argument is based on the assumption that the new codes apply to existing buildings as well as to new buildings under construction. After all, the library will have to be rehabilitated to meet the new codes, according to the author. Clearly, the assumption is that the codes apply to existing buildings. And that’s the kind of statement you would look for among the choices.

Don’t be discouraged if you can’t always prephrase an answer. Some questions just won’t have an answer that jumps out at you. But if used correctly, prephrasing works on many questions. It will really boost your confidence and increase your speed on the section when you can come up with a glimmer of what the right answer should look like, and then have it jump right off the page at you.

## 7. Keep the scope of the argument in mind.

When you’re at the point of selecting one of the answer choices, focus on the scope of the argument. Most of the wrong choices on the section are wrong because they are “outside the scope.” In other words, the wrong answer choices contain elements that don’t match the author’s ideas or that go beyond the context of the stimulus.

Some answer choices are too narrow, too broad, or have nothing to do with the author’s points. Others are too extreme to match the argument’s scope-they’re usually signaled by such words as all, always, never, none, and so on. For arguments that are moderate in tone, correct answers are more qualified and contain such words as usually, sometimes, probably.

To illustrate the scope principle, let’s look again at the question mentioned above:

The author’s argument depends on which of the following assumptions about the new building codes?

Let’s say one of the choices read as follows:

The new building codes are far too stringent.

Knowing the scope of the argument would help you to eliminate this choice very quickly. You know that this argument is just a claim about what the new codes will require: that the library be rehabilitated. It’s not an argument about whether the requirements of the new codes are good, are justifiable, ore ridiculously strict. That kind of value judgment is outside the scope of this argument.

Recognizing scope problems is a great way to eliminate dozens of wrong answers quickly.

# CONCEPTS IN CRITICAL REASONING

**ANALYZING-**The argument is a set of statements of which it is claimed that one of those statements the premises supports the conclusion. To begin that analyze an argument the students need to do is identify its premises and conclusion.

**EXAMPLE 1.** If you're a fitness walker, there is no need for a commute to a health club. Your neighborhood can be your health club. You don't need a lot of fancy equipment to get a good workout either. All you need is a well-designed pair of athletic shoes.

This paragraph best supports the statement that

- **A.** fitness walking is a better form of exercise than weight lifting.
- **B.** a membership in a health club is a poor investment.
- **C.** walking outdoors provides a better workout than walking indoors.
- **D.** fitness walking is a convenient and valuable form of exercise.
- **E.** poorly designed athletic shoes can cause major foot injuries.

- Answer: Option D
- Explanation:
- By stating that fitness walking does not require a commute to a health club, the author stresses the convenience of this form of exercise. The paragraph also states that fitness walking will result in a good workout. Choice a is incorrect because no comparison to weight lifting is made. Choice b may seem like a logical answer, but the paragraph only refers to people who are fitness walkers, so for others, a health club might be a good investment. Choice c is not in the passage. Although choice e seems logical, the paragraph does not indicate that the wrong shoes will produce major injuries.

Example 2. It is well known that the world urgently needs adequate distribution of food, so that everyone gets enough. Adequate distribution of medicine is just as urgent. Medical expertise and medical supplies need to be redistributed throughout the world so that people in emerging nations will have proper medical care.

This paragraph best supports the statement that

- **A.** the majority of the people in the world have never been seen by a doctor.
- **B.** food production in emerging nations has slowed during the past several years.

- **C.** most of the world's doctors are selfish about giving time and money to the poor.
- **D.** the medical-supply industry should step up production of its products.
- **E.** many people who live in emerging nations are not receiving proper medical care.

- Answer: Option E
- Explanation:
- This answer is implied by the statement that redistribution is needed so that people in emerging nations can have proper medical care. Choices a, b, and c are not mentioned in the passage. Choice d is also incorrect"the passage indicates that the distribution of medicine, not its production, is inadequate.

**EVALUATING REASONING**

Evaluative reasoning is a building block in evaluation: it is used throughout the evaluation to synthesize information necessary to draw evaluative conclusions. This is done in two ways, by combining:

- evidence about performance on a particular dimension and interpreting it relative to definitions of 'how good is good' to generate a rating of performance on that dimension
- ratings of performance on several dimensions to come to an overall conclusion about how good performance is for a particular site, project, programme, policy or other 'evaluand' (a generic term for that which is being evaluated)."

## EXAMPLE

The meteorological department has predicted good monsoon this year for the tenth consecutive year and this will result in good crop yield.

Courses of action/Evaluative conclusion:

I. The govt should offload the stores before harvesting.

II. The govt should provide chemical fertilizers to farmers immediately.

- **A.** If only I follows
- **B.** If only II follows
- **C.** If either I or II follows
- **D.** If neither I nor II follows

- **E.** If both I and II follow

Answer: Option A

Explanation:

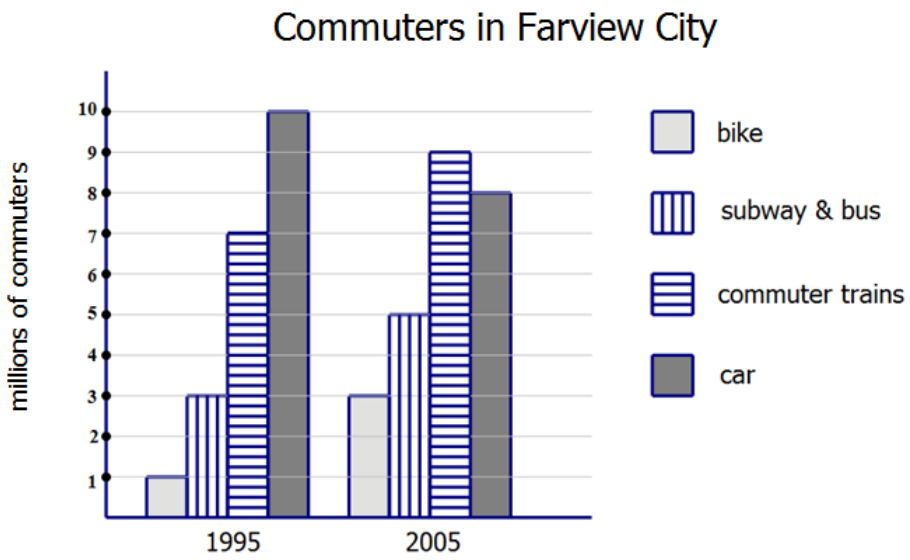
I is advisable to be prepared for the storage of the new crop. II is not relevant.

## INTEGRATED REASONING

Integrated Reasoning (IR) is a relatively new section (launched in 2012) designed to test the ability of a candidate to analyze the data presented in various formats and solve related problems. The questions belong to 4 different types: graphical interpretation, 2 part analysis, table analysis, and multi-source reasoning.

Graphical Interpretation questions

1) The graph below shows the different commuting options chosen by commuters in the Farview City metropolitan region in 1995 and in 2005.




1a) The commuting mode whose ridership increased by approximately 29% from 1995 to 2005 is _____.

| |
|---|
| bike |
| subway & bus |
| commuter trains |
| car |

1b) Assume the graph above shows all commuters in the two relevant years. In 2005, the car commuters were _____ percent of all commuters.

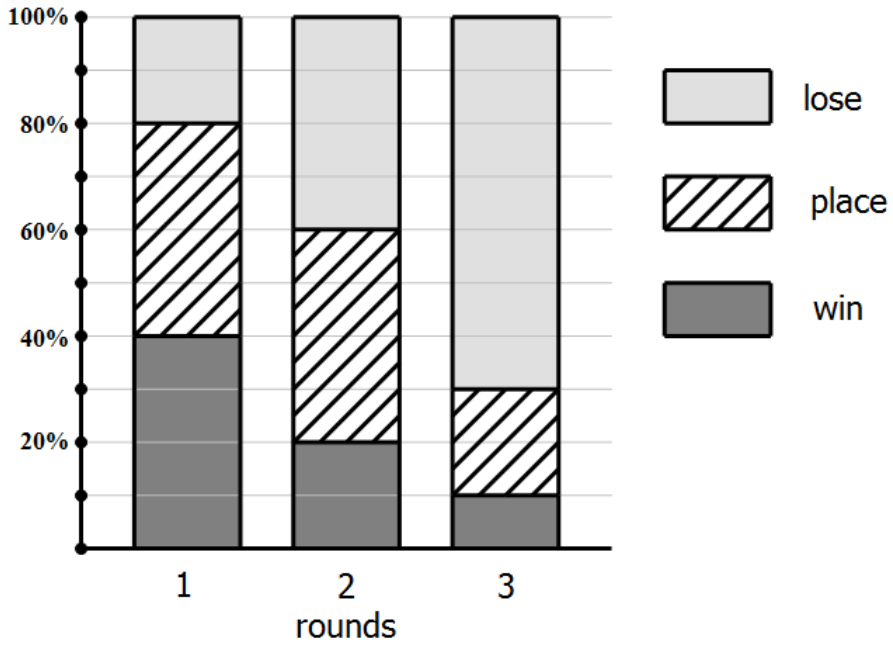
| |
|---|
| 25 |
| 32 |
| 48 |
| 60 |

Answer:

1)(a) Well, we can estimate this one. A 29% increase is an increase of a little more than a quarter. Bikes tripled, so that's way more than a quarter increase — that's not correct.. The category "subway & bus" when from 3 to 5 million, more than a 50% — that's not correct. Cars decreased, so that's not correct. Even without looking at "commuter trains", we can easily eliminate the other three. Notice "**commuter trains**" increased from 7 M to 9M, a 2M increase which is slightly more than one quarter of 7. That's the answer, and we didn't need the calculator.

1(b) In 2005, there were 8M car commuters, and 3 + 5 + 9 + 8 = 25M commuters total. That means, car users were 8/25. Multiply this fraction by 4/4 to get 32/100 = **32%**.

2) In a certain academic competition, there are three rounds, and three possible results in each round. The folks who "lose" acquire no commendations and do not advance to the next round. The folks who "place", acquire a set of commendations for that round, but do not advance to the next round. The folks who "win" acquire a set of commendations for that round, and, in the case of the first two rounds, advance to the next round; in the case of the third round, the "win" means winning the entire competition. The following chart shows, on average, the percentages of participants who achieve the three results in each of the three rounds.




2a) If 100,000 participant start this process, and if all the percentages in the chart are correct, _____ people of them would win the entire competition.

| |
|---|
| 800 |
| 3,200 |
| 7,000 |
| 10,000 |

2b) Exactly _____ % of participants who start acquire exactly two sets of commendations.

| |
|---|
| 16 |
| 16.8 |
| 20 |
| 21.6 |

2)(a) Suppose 100,000 start. In the first round, 40%, or 40,000 are able to "win" and advance to the second round. In the second round, 20% of 40,000 = 8,000 are able to "win" and advance to the third round. In the third round, 10% of 8,000 = **800** win the entire competition.

2)(b) How are the people who win exactly two sets of commendations? They form two groups. One group are the people who win the first round and place in the second, thus winning two commendations and not advancing. The others are the folks who win the first round, win the second round, but lose the third round, thus earning only two sets of commendations even though they advanced to the third round.

Folks who (1st = win, 2nd = place) = (0.40)*(0.40) = 0.16 = 16%

- In Multi-Source Reasoning type questions, data is presented in the form of 2-3 tabbed pages. The information provided can include text, tables or graphics. Along with the tabbed pages on half of the screen, the corresponding tasks are presented in the other half of the computer screen.