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Data Sufficiency

Concept 1

2010

Introduction

Prelims Paper II

Introduction

Data Sufficiency tests the quantitative reasoning ability using an unusual set of directions. The examinee is given a question with two associated statements that provide information that might be useful in answering the question. The examinee must then determine whether either statement alone is sufficient to answer the question; whether both are needed to answer the question; or whether there is not enough information given to answer the question.

Data Sufficiency questions test your ability to analyze a problem, to recognize relevant or irrelevant information in determining the solution of that problem, and to determine when you have sufficient information to solve that problem.

Each item consists of the questions itself followed by two numbered statements.

(A) If statement 1 alone is sufficient to answer the question, but statement 2 alone is not sufficient.
(B) If statement 2 alone is sufficient to answer the question, but statement 1 alone is not sufficient.
(C) If both statements together are needed to answer the question, but neither statement alone is sufficient.
(D) If either statement by itself is sufficient to answer the question.
(E) If not enough facts are given to answer the question.

Perhaps the easiest way to fully internalize the scope of these questions is to replace the word “is” with the words “must be” — **the questions are not asking whether an answer is possible, but rather, whether it "must" be the case.** They will not ask you the answer of the question but to determine whether you can answer the question by using the information provided.

Let’s look at an example –

What should be the minimum marks a candidate should get to qualify Civil Services Aptitude Test, which is paper II for Preliminary Examination and is compulsory for all aspirants?

(1) UPSC takes Civil Services Aptitude Test as a Preliminary Examination
(2) A candidate need to clear Preliminary Examination in order to get qualified for Mains Examination

Now let us look at the first part of the question that is –

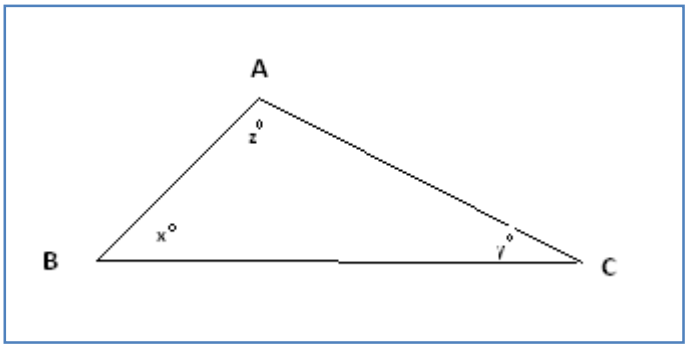
"What should be the minimum marks a candidate should get to qualify Civil Services Aptitude Test…"

Here you have been asked for a Number which is a percentile. Now if the information provided below allows you to arrive at the required number, then the statement/statements are sufficient. If the statement does not allow you to arrive at the number then it is insufficient.

Most of the times Data Sufficiency problems will ask you either a number or an answer in Yes/No format. In case of Yes/No answers, if the information provided allows you to get a definitive Yes or No answer then it is sufficient. If you are getting sometimes "Yes" and sometimes "No" then it is not sufficient.

Directions and Answers of the Questions

Mostly the format of answers and directions given are same for Data Sufficiency Problems. Read the directions carefully before you start with the problems. While solving the problems, you must rely ONLY on the information provided in the question and should not draw any inference from the figures provided. For example –



In ∆ABC what is the value of x?

(1) AB=BC
(2) Z=40

<u>Solution:</u>

Now from the figure it seems that the triangle seems to be **scalene triangle,** where none of the sides are equal. But you should concentrate on the facts provided in the problem where statement (1) says AB=BC

and hence you should consider the triangle as **Isosceles triangle**. Only then you can use the formula as the base angles of an isosceles triangle are always equal.

This gives you y=z=40. Angle Sum of any triangle is 180° and hence, x+y+z = 180. So now we can derive the value of x. So to get the value of x both the statements are necessary.

This example is explained here to thrust that, you must rely only on the information provided in the problem and should not go by any OWN considerations .

Data sufficiency problems provide ample opportunity to use the Elimination Technique. If you can eliminate any of the choices you are more closure to the right one. Always use the elimination while working with this type of problems.

Solving Data Sufficiency Problems

Most important factor to handle these problems efficiently is to understand and remember the answer choices provided to you. You should always remember that nobody has asked you to calculate the answer; you just need to tell that the problem is solvable.

Elimination is the best technique to arrive at the right choice. It will also save the time. There are few things which you need to know about how the questions are designed. When any Data Sufficiency question starts with "is, are, does or do" you need to fine "Yes/No" type answers. Such types of questions are trickier than the other types of Data Sufficiency problems. As mentioned earlier, a statement is sufficient as long as it gets you a definite yes or no answer. If you can get both a yes and a no depending on which numbers you use, that statement is not sufficient.
Also, when the answer to a question is D ("EACH statement ALONE is sufficient"), the answer provided by both statements will be the same. You should not see a situation in which one statement leads to a yes and the other statement to a no answer.

Sometimes the problem will confuse you by giving a partial but insufficient statement as statement (1) and missing statement in statement (2). This will lead you to give the answer choice as **C (both statements together are needed to answer the question, but neither statement alone is sufficient.)** Look at such problems very carefully. It might be a case that the information provided in statement (2) alone is sufficient and the correct answer is **B (statement 2 alone is sufficient to answer the question, but statement 1 alone is not sufficient.)** and not C.

Sample Examples

1. If x and y are integers, is $\frac{x}{y}$ an integer?
   (1) x=5
   (2) y=x

   Solution:

   Statement (1) is not sufficient as it does not speak anything about y. Now here is a catch. You may think that Statement (1) and (2) both together are sufficient and the answer is C. But that is a WRONG answer.

   Look at the statement (2). Because for any non-zero integer divided by itself, the answer is 1 and 1 is an integer. So statement (2) alone can be sufficient and the correct answer is **B**

2. What is the 1st term in a series S?
   (1) The 3rd term of S is 4.
   (2) The 2nd term of S is three times the 1st, and the 3rd term is four times the 2nd.

   Solution:

   Statement (1) alone is not sufficient because knowing only the third term can not give you the 1st one.

   Statement (2) alone is also not of much help as we can have multiple terms depending on the information given in statement (2) –

   a. 1,3,12
   b. 2,6,24

   Now let us consider both the statement together. In that case we get third term as 4. Second term is 1/4th of third term based on the information provided in statement (2). Hence second term is 1. First term is 1/3rd of second and hence the first term is 1/3.

   The series is – 1/3, 1, 4 and the answer is **C**

3. What is the area of a Circle?

   (1) Circumference is 24π
   (2) Diameter of the circle is 24

   Solution

   We will need the radius of a circle to find out the area.

   Area of Circle = πr^2
   Circumference of the circle = $2\pi r$

So the statement (1) can provide us the required radius. Aldo in statement (2) we have been given the diameter so we can get the radius as – Diameter/2.

Hence the answer is **D** (either statement by itself is sufficient to answer the question)

4. If $x \neq -1$and $y \neq \pm 1$then what is the value of $\frac{xy - x}{(x+)(y-1)}$?
   (1) x=5
   (2) y=4

Solution:

Let's solve the equation –

$$\frac{xy - x}{(x+)(y-1)} = \frac{x(y-1)}{(x+)(y-1)} = \frac{x}{(x+)1}$$

Since only "x" is remaining after solving the equation, answer is A (statement 1 alone is sufficient to answer the question, but statement 2 alone is not sufficient.)

5. If the ratio of brown cars to blue cars in a certain parking lot is 2:3, how many brown cars are in the lot?

   (1) There are 15 blue cars in the lot
   (2) There are 25 cars total in the lot.

Solution:

From statement (1) we can calculate the number of brow cars as –
Brown Cars / Blue Cars = 2/3
∴ 3 x Brown Cars = 2 x Blue Cars
∴ 3 x Brown Cars = 2 x 15
∴ Brown Cars = 10

From statement (2) we can calculate the number of brown cars as –
Blue Cars + Brown Cars = 25

$\frac{3}{2}$ x Brown Cars + Brown Cars = 25

$\frac{5}{2}$ X Brown Cars = 25

Brown Cars = 10

As it is possible calculate the answer from any of the statement, the answer is D (either statement by itself is sufficient to answer the question.)