# CHAPTER

# 8

# Data Sufficiency

# 8.0 :: Data Sufficiency

**Q1** What is a + b?

(1) a = 5
(2) b = 2

**Q2** Is the integer xy divisible by 6?

(1) x is divisible by 12.
(2) y is divisible by 9.

**Do not try to find the solution or verify the answer to the question before**

**general rules**

    a) finding what relevant information is missing from the question and two statements
    b) writing out all the possible sets of data satisfying each statement

**Determine your answer through the Sufficiency Test, outlined below:**

☑ What information is missing from the question?

☑ Does statement (1) provide sufficient information by itself?

☑ Does statement (2) provide sufficient information by itself?

☑ If neither statement provides sufficient information to answer the question by itself, consider both statements simultaneously as supplements to each other. Do statements (1) and (2) provide sufficient information together?

Try not to read more than what you see!

☑ **Sufficiency Test**

This simple chart is a surefire way to effectively and efficiently tackle each data sufficiency problem. Memorize the answer codes (YN = A, NY = B) so that you you can quickly answer each question without having to refer to the instructions.

| Statement 1 Sufficient? | Statement 2 Sufficient? | Both Sufficient? | Answer |
|---|---|---|---|
| Y | N | | YN = **A** |
| N | Y | | NY = **B** |
| N | N | Y | NNY = **C** |
| Y | Y | | YY = **D** |
| N | N | N | NNN = **E** |

☑ **Two types of questions:**

**1) Information-seeking:** "What is...?" "How many...?"

Usually, the two statements are used to find the same answer to a given question.

**2) Verification:** "Is this true?"

Usually, the two statements are used to verify the validity of a given question.

☑ **Very rare, but possible trick questions**

**Type 1) Information seeking:** Each statement provides sufficient information to answer the question, though they may lead to different answers. (YY = D type)

      **Example**: What is $a^2$? (YY = D type)

              (1) $a = 2$

              (2) $a = 3$

      Statements 1 and 2 provide conflicting answers: $a^2 = 4$ or 9. However, they do give sufficient information to solve the problem.

**Type 2) Verification:** At least one statement provides sufficient information to disprove a given question. (YY= D or NNY = C type)

      **Example**: Is $a^2 = b^2$? (YY = D type)

              (1) $a = 2$ and $b = -2$

              (2) $a = 2$ and $b = 1$

      Statement 1 proves the given question: $2^2 = 4 = (-2)^2$, while Statement 2 disproves it: $2^2 = 4$ and $1^2 = 1$. Therefore, while one statement verifies the given question and the other disproves it, they both provide sufficient information to find an answer.
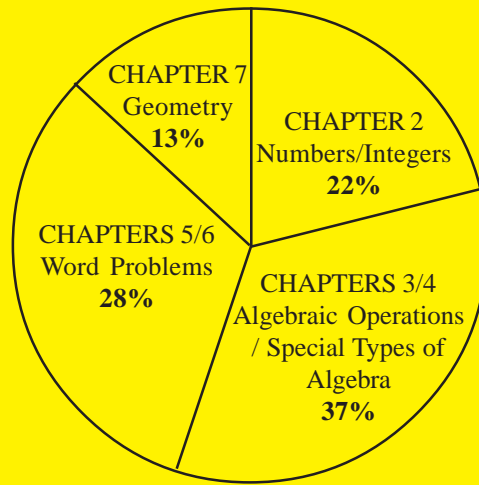
      **Example**: Is $a^2 = b^2$? (NNY= C type)

              (1) $a = 2$

              (2) $b = 1$

      Statements 1 and 2 together are sufficient to disprove the question.

☑ Data sufficiency questions can involve any of the Algebra and Geometry topics covered in this book. However, a study on over 100 actual GMAT questions yielded the most **common topics** as outlined below:

CHAPTER 7
Geometry
**13%**

CHAPTER 2
Numbers/Integers
**22%**

CHAPTERS 5/6
Word Problems
**28%**

CHAPTERS 3/4
Algebraic Operations
/ Special Types of
Algebra
**37%**

## approach to sample questions

**A1** Statement (1) is a = 5, which is not sufficient alone to find the answer.
Statement (2) is b = 2, which is not suffcent alone to find the answer.
However, statements (1) and (2) together can provide enough information
to find the answer to the question: a + b.
Therefore, the answer is NNY = (C).

| Statement 1 Sufficient? | Statement 2 Sufficient? | Both Sufficient? | Answer |
|---|---|---|---|
| N | N | Y | NNY = **C** |

**A2** The set of x values satisfying statement (1) are 12, 24, 36, 48, ..., which
alone is enough to answer the question.
The set of y values satisfying statement (2) are 9, 18, 27, 36, ..., which
alone is not enough to answer the question.
Therefore, the answer is YN = (A).

| Statement 1 Sufficient? | Statement 2 Sufficient? | Both Sufficient? | Answer |
|---|---|---|---|
| Y | N | | YN = **A** |