3

Data Sufficiency #1

The data sufficiency questions give a lot of test takers headaches. Merely figuring out what you're asked to do can be awkward. You may know the concept a question is testing but still miss it because you were confused by the data sufficiency format.

In this chapter, you'll decipher what it all means and learn a simple but extremely effective approach for those data sufficiency questions.

WHAT DOES IT ALL MEAN?

The first time you get a data sufficiency question, you will see a screen describing the directions for that type of question. It will say something like this:

> This data sufficiency problem consists of a question and two statements, labeled (1) and (2), in which certain data are given. You have to decide whether the data given in the statements are *sufficient* for answering the question. Using the data given in the statements *plus* your knowledge of mathematics and everyday facts (such as the number of days in July or the meaning of *counterclockwise*), you must indicate whether
>
> - statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;
> - statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;
> - BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;
> - EACH statement ALONE is sufficient to answer the question asked;
> - statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

You could easily spend a large amount of time trying to understand that confusing morass of instructions. If you do that during the test, you're throwing away precious minutes that you need to answer the questions. Instead, you should understand the data sufficiency format forward and backward before you ever set foot inside a testing center. So let's break it apart and see what those directions really mean.

Your mission on a data sufficiency problem is to determine which statement or combination of statements gives you enough information to answer the question. Then you choose the answer choice that matches that combination. The following chart shows you what the answers mean:

Answer Choice	Statement (1) Alone	Statement (2) Alone	(1) and (2) Together
A	enough	not enough	—
B	not enough	enough	—
C	not enough	not enough	enough
D	enough	enough	—
E	not enough	not enough	not enough

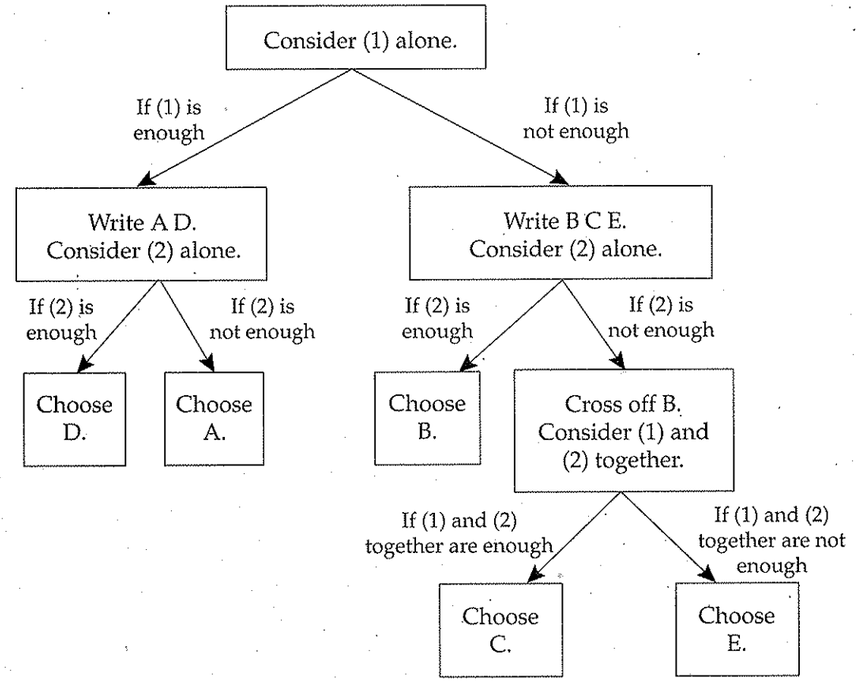
Here's another way to think about what each answer choice means:

A	①	~~②~~	(1) only
B	~~①~~	②	(2) only
C	1	2	Teamwork
D	①	②	Either/or
E	1	2	Cannot answer

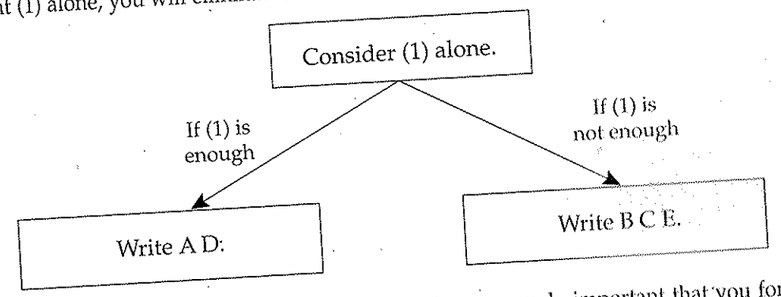
These answer choices are the same for every data sufficiency problem. Memorize the "definition" of each answer choice so that you never need to read the directions or the text of the answer choices.

AD OR BCE

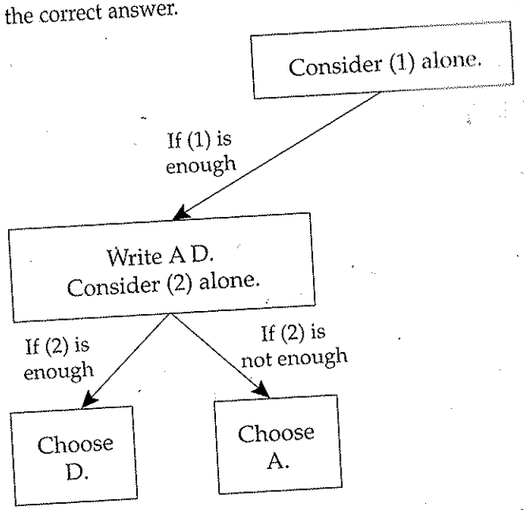
Don't try to look at both statements at the same time and sort out which answer fits. That way lies madness. Instead, you should look at one statement at a time, determine whether you can answer the question using the statement, and eliminate the appropriate answer choices. Follow this flowchart:



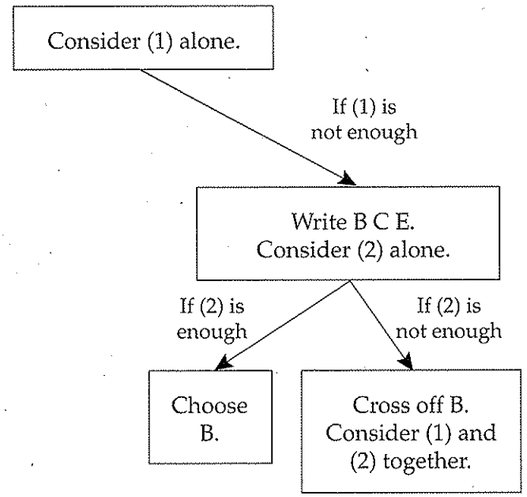
Your first step on any data sufficiency question is to consider statement (1) alone and narrow your choice to AD or BCE. Do *not* read statement (2) yet. If statement (1) provides enough information to answer the question, then A and D are the only possible answer choices. If statement (1) is insufficient, then only B, C, and E are possible. Based on statement (1) alone, you will eliminate half of the answer choices.



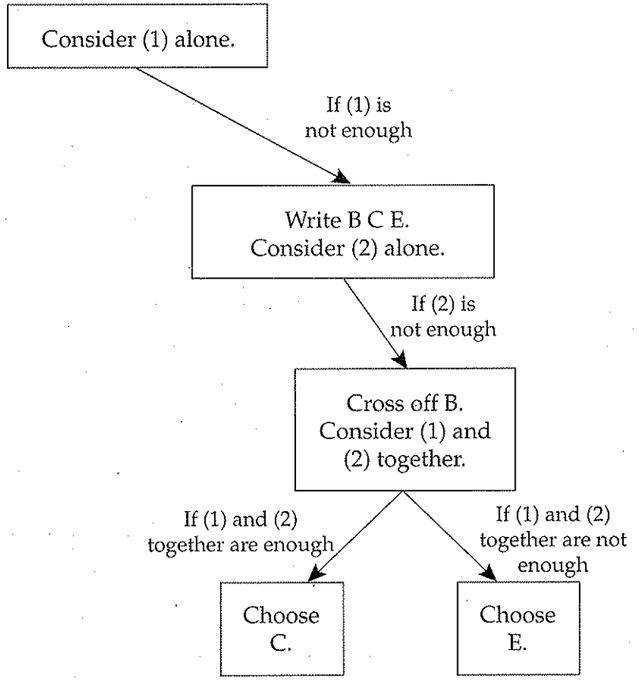
Next, you will consider statement (2) alone. It is extremely important that you forget what you saw in statement (1). Avoid the common mistake of rushing immediately into considering both statements together. Suppose that statement (1) was sufficient to answer the question, and you are left with A and D as possible answers. If statement (2) is not enough (by itself) to answer the question, then A must be the answer. If statement (2) is enough, then D is the correct answer.



Now, suppose that statement (1) was not enough, and your initial elimination left you with answers B, C, and E. Again, the next stage is to consider statement (2) by itself. If it is sufficient to answer the question, then B is the correct answer. If not, you must eliminate B and then consider both statements together.



If you are down to C and E as the remaining answers, then, and only then, will you consider both statements together. At that point, if statements (1) and (2) combined provide enough information to answer the question, C is the correct answer. Otherwise, the question cannot be answered, and you should choose E.



The next examples show this approach in action.

1. How many cookies did Max eat?

   (1) Sharon ate 4 cookies, 2 fewer than Max ate.
   (2) Max and Sharon together ate 10 cookies.

Look at statement (1). This provides enough information to answer the question. Sharon ate 4 cookies, so Max ate 4 + 2 = 6 cookies. Write down "A D" as the answers you have left.

Look at statement (2). This is not enough information. You don't know how many of the 10 cookies Sharon ate and how many Max ate. You need to forget the information from statement (1) while you look at statement (2). You should eliminate D because statement (2) didn't work, which leaves A as the correct answer.

2. How many marbles does Karl have?

   (1) Karl has 6 more marbles than Jennifer has.
   (2) Jennifer has 8 marbles.

Look at statement (1). This isn't enough information to answer the question. You need to add 6 to something, but you don't know what that something is. Write down "B C E" as the answers you have left.

Look at statement (2). This isn't enough either. Forget statement (1) during this step. Cross off B because statement (2) wasn't enough, and go on to the next step.

Look at statements (1) and (2) together. Now you can find that Karl has 8 + 6 = 14 marbles. Choose C.

Quiz #1

1. Mike buys a bicycle and a helmet for a total cost of $315. How much does the helmet cost?

   (1) The bicycle costs twice as much as the helmet.
   (2) The bicycle costs $210.

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ✓ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

2. In an apple orchard, Carol and Joe each picked some apples. Who picked more apples?

   (1) Joe picked $\frac{3}{4}$ as many apples as Carol did.
   (2) After Carol stopped picking apples, Joe continued picking apples until he had picked 15 apples.

   ✓ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

3. While trick-or-treating at a certain house, each child in a particular group received either one or two pieces of candy. How many of the children received two pieces of candy?

   (1) Of the children in the group, 25 percent received two pieces of candy.
   (2) The children in the group received a total of 15 pieces of candy at the house.

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ✓ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

4. The rents on Doug's apartment and Magda's apartment were both increased. Which tenant paid the larger dollar increase in rent?

   (1) Doug's rent increased 2 percent.
   (2) Magda's rent increased 8 percent.

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

5. How many guitars does Rick own?

   (1) Rick owns three times as many electric guitars as acoustic guitars.
   (2) If Rick owned 6 fewer guitars, he would own only two-thirds as many guitars as he actually owns.

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

ELIMINATE CONFUSION

The data sufficiency format is very confusing. The key to consistent success is following the step-by-step method of eliminating answer choices. Go slowly and carefully as you start practicing this approach; taking the time to master it will pay off with high accuracy, even on the toughest data sufficiency questions.

DON'T FIND THE ANSWER

You usually don't need to find the actual value asked for in a data sufficiency question. You just need to know whether you could figure it out with the information in the statements. So don't waste your time solving the problem to come up with the numbers; just setting up the problem will usually be enough.

There is one situation in which you might want to find the number: when you're not sure whether the problem is actually solvable with the information in the statement. In that case, you should set up the problem and work through it until you are sure, even if you find yourself calculating the solution.

AVOID COMMON MISTAKES

Here are ways to avoid some common mistakes on data sufficiency questions:

- When you consider statement (2) alone, you must forget what statement (1) said. Physically covering up the statement with your finger or pencil can help. (But be careful about fingerprints on the computer screen!) Otherwise, you may think that statement (2) provides more information than it really does.

- Don't rush to consider both statements combined. A common tendency is to read the question and both statements, and then try to juggle all of the information at once. This mistake will lead to choosing C too frequently, even though it is wrong. It's important to consider each of the statements on its own, eliminating answers as you go, before considering them in combination.

- Don't try to do everything in your head. It is a common error for people to answer data sufficiency questions without writing anything on their scratch paper. That's a big no-no. Even though you don't need to calculate an answer, you should write down AD or BCE to help you eliminate. Also, writing down the given pieces of information, setting up equations, and the like often help you determine when you have enough pieces of the puzzle to answer the question.

- As always, read carefully. Data sufficiency questions are notorious for deliberate trickery. Be on the lookout for misleading phrases, and give yourself enough time to read the question slowly and completely.

PRACTICE SET

1. What was the total cost to place q long distance telephone calls?

   (1) Each call lasted at least 2 minutes.
   (2) The rate for long distance calls is \$0.32 per minute and $q = 7$.

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ⊘ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

2. If s and t are positive, what is the value of s?

   (1) $t = 2.7$
   (2) $s = 3.1t$

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ⊘ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

3. What is the value of x?

   (1) $3x + y = 12$
   (2) $y = 9$

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ⊘ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ○ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

4. Tom spent the day baking cookies. Of the first three dozen cookies, one third contained chocolate chips. Of the remaining cookies, one half contained chocolate chips. How many cookies containing chocolate chips did Tom bake that day?

   (1) Tom baked five dozen cookies.
   (2) Of all the cookies Tom baked, two fifths contained chocolate chips.

   ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
   ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
   ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
   ⊘ EACH statement ALONE is sufficient to answer the question asked.
   ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

5. The usual price for a bagel was reduced during a sale. How much money could one have saved by purchasing ten bagels at the sale price rather than at the usual price?

(1) The usual price for the bagels was $0.50 per bagel.
(2) The sale price for the bagels was $0.40 per bagel.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ✓ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

6. How many sandwiches were sold at a certain delicatessen yesterday?

(1) A total of 64 sandwiches were sold at the delicatessen today, 12 more than half the number sold yesterday.
(2) The number of sandwiches sold at the delicatessen today was 40 fewer than the number sold yesterday.

- ✓ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

7. If a total of 30 puppies are displayed in the two windows of a pet store, how many of the 30 puppies are female?

(1) $\frac{3}{4}$ of the puppies in the left window are male.

(2) $\frac{1}{3}$ of the puppies in the right window are female.

- ✓ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ✓ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

8. By what percent did the price of a particular stock increase?

(1) The price of the stock increased by $10.
(2) The price of the stock doubled to $20.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ✓ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ✓ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

9. What is the value of $a + b$?

(1) $a = 7$
(2) $a + b - 9 = 0$

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ⊘ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

10. How much did a certain taxi ride cost?

(1) The taxi ride covered 3.75 miles.
(2) The cost for the taxi ride was $2.00 plus $0.30 for every 0.25 miles.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ⊘ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

11. How many of the trucks in a parking lot that contains 40 motor vehicles are painted red?

(1) Of the motor vehicles in the parking lot, 20 percent are painted red.
(2) Of the motor vehicles in the parking lot, 15 are trucks.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ⊘ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

12. Bruce, John, Linda, and Mark stand, in that order, in a straight line. If Linda stands 7 feet away from Mark, what is the distance from Bruce to John?

(1) Bruce stands 7 feet away from Linda.
(2) John stands 11 feet away from Mark.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ⊘ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

13. What is the value of x?

(1) $x + y + z = 17$
(2) $x + y = 11$

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ✓ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

14. The regular price for a box of Crunch-O cereal is $3.50. How much money will be saved on the purchase of 5 boxes of Crunch-O cereal if the regular price is specially reduced?

(1) The reduced price is more than 50% of the regular price.
(2) The reduced price is $0.75 less per box than the regular price.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ✓ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ○ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

15. Mike bought a computer system for $4,000 and later sold it. For what price did Mike sell the computer system?

(1) Mike sold the computer system for 60% of the price he paid for it.
(2) Mike advertised the computer system in a newspaper at a price of $3,000, which was 25% more than the price for which he actually sold it.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ○ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ✓ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

16. How old, rounded to the nearest year, was Jim in May 1989?

(1) Jim's friend Steve, who is exactly 2 years older than Jim, turned 25 years old in 1972.
(2) In March 1982, Jim turned 33 years old.

- ○ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- ⊘ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- ○ BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- ⊗ EACH statement ALONE is sufficient to answer the question asked.
- ○ Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

17. Of the 3,000 cars manufactured in Factory Q last year, how many were still in operation at the end of the year?

(1) Of all of the cars manufactured in Factory Q, 60% were still in operation at the end of last year.
(2) A total of 48,000 cars manufactured in Factory Q were still in operation at the end of last year.

- Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- EACH statement ALONE is sufficient to answer the question asked.
- Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

18. Norman is practicing shooting free throws, alternating right-handed shots with left-handed shots. He shoots 50 free throws in this manner, takes a break, and then shoots another 50 free throws in the same manner. How many successful free throws did Norman shoot?

(1) Norman successfully shot 90% of his free throws before the break and 60% of his free throws after the break.
(2) Norman shot 10 more successful left-handed free throws than he did successful right-handed free throws.

- Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- EACH statement ALONE is sufficient to answer the question asked.
- Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

19. Of the 40 guests at a party, 20 eat a bowl of ice cream. How many of the guests at the party eat a bowl of chocolate ice cream?

(1) Of the guests, 10 eat a bowl of vanilla ice cream.
(2) Of the guests, 5 eat a bowl of strawberry ice cream.

- Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- EACH statement ALONE is sufficient to answer the question asked.
- Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

20. The toll for trucks along a certain toll road is $100 plus $0.50 per pound of cargo. What is the toll for a truck carrying a cargo of bananas?

(1) The truck weighs 4,000 pounds.
(2) The bananas weigh 800 pounds.

- Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked.
- Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked.
- BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient.
- EACH statement ALONE is sufficient to answer the question asked.
- Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

ANSWERS AND EXPLANATIONS

Quiz #1

1. **D** Start with statement (1).You know that the bicycle costs twice as much as the helmet and that the two together cost $315. The only possible prices are $105 for the helmet and $210 for the bicycle. You can answer the question, so narrow it down to A or D. Next, look at statement (2). You can simply subtract $210 from $315 to get $105 for the cost of the helmet. This also answers the question, so choose D.

2. **A** Start with statement (1). You don't know how many apples either person picked, but you do know that Joe picked fewer than Carol. This answers the question, so narrow the choice to A or D. Next look at statement (2). You know that Joe took longer to pick his apples, but you don't know whether he picked more or fewer than Carol did. You can't answer the question, so choose A.

3. **C** Start with statement (1). Although you know the percentage of the group that received two pieces, you don't know how many children that is. You can't answer the question, so narrow it down to B, C, or E. Next, look at statement (2). You can't tell how many of the 15 pieces went to "two-piece" kids and how many went to "one-piece" kids. Maybe 1 kid received 2 pieces and 13 kids each received 1 piece. Maybe 7 kids each received 2 pieces and 1 kid received 1 piece. You can't answer the question, so eliminate B. Now, try both statements together. If there are x children, then 75% of x receive 1 piece and 25% of x receive 2 pieces. Given that the total number of pieces is 15, you can set up this equation: $(0.75 \times 1 \times x) + (0.25 \times 2 \times x) = 15$. You could solve this equation and find the total number of children. Then you'd be able to answer the question by finding 25% of that number. Choose C.

4. **E** Start with statement (1). This only mentions Doug's increase, so you can't compare that to Magda's increase because you don't know their starting rents. You can't answer the question, so narrow it down to B, C, or E. Next, look at statement (2). This only tells you about Magda's increase. Again, you can't answer the question because you don't know their starting rents, so eliminate B. Next, look at both statements together. Even though Magda's percent increase is larger, you don't know anything about the actual dollar increases because you don't know their starting rents. This eliminates C. You can't answer the question, so choose E.

5. **B** Start with statement (1). This doesn't tell you anything about the total number of guitars, just about the ratio of electric to acoustic. You can't answer the question, so narrow it down to B, C, or E. Next, look at statement (2). If Rick owns y guitars, you can set up the equation $y - 6 = \frac{2}{3}y$. You could solve this equation to find how many guitars Rick owns. Don't waste time actually solving for y! You can answer the question using statement (2), so choose B.

Practice Set

1. **E** Start with statement (1). This tells you nothing about the cost of the calls. You can't answer the question, so narrow down the possible answers to B, C, and E. Look at statement (2). Now you know the cost per minute, but you don't know how many minutes the calls lasted. You can't answer the question, so eliminate B. Look at (1) and (2) together. You know more, but you still don't know the exact number of minutes—only that the total was at least 14 minutes. This eliminates C. You can't answer the question, so choose E.

2. **C** Start with statement (1). This doesn't tell you anything about s. You can't answer the question, so narrow down the choices to B, C, and E. Look at statement (2). Alone, this statement doesn't help. You don't know t, so you can't solve for s. You can't answer the question, so eliminate B. Look at statements (1) and (2) combined. You can plug $t = 2.7$ into the second equation to get $s = (3.1)(2.7)$. Now you can solve for s and answer the question. Choose C.

3. **C** Start with statement (1). You can't solve for x because you don't have a number to plug in for y. Narrow the answers to B, C, and E. Look at statement (2). This only tells you about y, not about x. You can't answer the question, so eliminate B. Look at (1) and (2) together. Now you can plug $y = 9$ into the first equation and solve for x. You can answer the question, so choose C.

4. **D** Start with statement (1). You know that one third of the first 36 cookies, or 12 cookies, contain chocolate chips. Since there are 5 dozen cookies total, that leaves 24 cookies of which one half, or 12 cookies, are also chocolate chip. That's $12 + 12 = 24$ cookies containing chocolate chips. You can answer the question, so narrow your choices to A and D. Look at statement (2). You can set up the equation $\frac{1}{3}x + \frac{1}{2}y = \frac{2}{5}(x + y)$, in which x is the first set of cookies (3 dozen), and y is the number of remaining cookies. Since you know that $x = 36$, you can plug that into the equation and solve for y. The total number of chocolate chip cookies would then be $\frac{2}{5}(x + y)$. You could answer the question, so choose D.

5. **C** Start with statement (1).You don't know anything about the sale price, so you can't determine how much money is saved. You can't answer the question; narrow it down to B, C, and E. Look at statement (2). Now you know the sale price, but not the regular price. You can't find the difference to answer the question, so eliminate B. Look at statements (1) and (2) together. You know that you save $0.50 – $0.40 = $0.10 per bagel. If you buy 10 bagels, that's $1.00 saved. You can answer the question; choose C.

6. **A** Start with statement (1). If x is the number of sandwiches sold yesterday, you can set up the equation $64 = \frac{1}{2}x + 12$. You don't actually need to solve the equation, just know that you could find x. You can answer the question, so narrow down the choices to A and D. Look at statement (2). You could set up an equation, $y = x - 40$, but you can't solve it because you don't know y, the number of sandwiches sold today. You can't answer the question with only B, so choose A.

7. **E** Start with statement (1). You can turn the statement around to say that $\frac{1}{4}$ of the puppies in the left window are female, but you don't know anything about the proportion of females in the right window. You can't answer the question so far, so you've got answers B, C, and E left. Look at statement (2). Same problem, just with the other window. Again you can't answer the question, so eliminate B. Look at (1) and (2) together. Although you know the male-to-female proportion in each window, you don't know how many puppies are in each window. If there are 24 puppies in the left window and 6 in the right, then there are $6 + 2 = 8$ female puppies. If there are 12 puppies in the left window and 18 puppies in the right, then there are $3 + 6 = 9$ female puppies. Don't assume the puppies are split evenly. You can't answer the question, so choose E.

8. **B** Start with statement (1). You know the dollar amount of the increase, but you don't know the original price, so you can't find the percentage increase. You can't answer the question, so narrow it down to B, C, and E. Look at statement (2). This tells you that the old price was \$10 and the new price is \$20. That's a 100% increase. You can answer the question, so choose B.

9. **B** Start with statement (1). This only gives you information about a. You can't answer the question, so narrow your choices to B, C, and E. Look at statement (2). You can solve for $a + b = 9$, which answers the question. You don't know what a and b are individually, but you don't need to in order to answer the question. Choose B.

10. **C** Start with statement (1). This tells you the length of the trip, but not how to get the cost from that. You can't answer the question, so your choices are now B, C, and E. Look at statement (2). This tells you the formula for determining the cost, but you don't know how many miles long the trip was. Remember, you need to forget statement (1) at this point. Now look at statements (1) and (2) together. You can take the miles from (1) and plug them into the formula from (2) to find the cost. You don't need to actually find the answer, just to be certain that you could. Choose C.

11. **E** Start with statement (1). You know that overall 20% are painted red, but you don't know how many trucks there are or if the trucks are different from the rest of the motor vehicles. They may be more or less likely to be painted red. You can't answer the question, so narrow the choices to B, C, and E. Look at statement (2). You now know that there are 15 trucks, but you don't know anything about the percentage that are painted red. You can't answer the question; eliminate B. Look at (1) and (2) together. There are 15 trucks and 20% of all motor vehicles are painted red, but you can't assume that the 20% statement applies to trucks specifically. Perhaps none of the trucks are red and all the red motor vehicles are non-trucks. You can't answer the question, so choose E.

12. **C** Start by drawing a picture. It should look something like this:

Now, look at statement (1). From the question, you know that LM is 7 feet. This statement tells you that BJ plus JL is also 7 feet. But you don't know how much of the 7 feet is BJ. You can't answer the question, so narrow your potential answers to B, C, and E. Look at statement (2). This tells you that JM is 11 feet, which means that JL is 4 feet because, from the question, LM is 7 feet. However, you don't know anything about B or how far away he is from the others. You can't answer the question, so eliminate B. Look at statements (1) and (2) together. From the question, you know that LM = 7. From (1) you know that BJ + JL = 7. From (2) you know that JL = 4. Substitute that into BJ + JL = 7 and you find that BJ = 3. That answers the question, so choose C.

13. **E** Start with statement (1). You can't solve for x because you don't know the values of y and z. You can't answer the question, so narrow your choices to B, C, and E. Look at statement (2). You can't solve for x because you don't know what value to use for y. Eliminate B. Try statements (1) and (2) together. You can solve for z by substituting $x + y = 11$ into the first equation, but you can't solve for x. You can't answer the question, so choose E.

14. **B** Start with statement (1). Because the statement says "more than 50%," you can't tell whether it's 51%, 99%, or somewhere in between. You can't answer the question, so narrow it down to B, C, and E. Look at statement (2). This tells you that you save \$0.75 per box, or \$3.75 for 5 boxes. That answers the question, so choose B.

15. **D** Start with statement (1). You just need to find 60% of $4,000 (it's $2,400) and that's the price for which Mike sold the computer system. You can answer the question, so narrow your choices to A and D. Look at statement (2). You know that 25% of the sale price is $3,000, so you could solve for the sale price and answer the question. Choose D.

16. **B** Start with statement (1). Because Steve turned 25 in 1972, you can determine that Jim turned 23 in 1972. So Jim must have turned 40 in 1989, but you don't know whether he was 39 or 40 in May. His birthday may have been later in the year. You can't answer the question, so narrow the choices to B, C, and E. Look at statement (2). If Jim turned 33 in March 1982, then he turned 40 in March 1989 and he would still be 40 in May. You can answer the question, so choose B.

17. **E** Start with statement (1). The 60% refers to all cars *ever* manufactured in Factory Q, not just those made last year. You can't answer the question, so your potential answers narrow to B, C, and E. Look at statement (2). Again, the 48,000 refers to all cars ever manufactured in Factory Q. You don't know how many of those are from last year's batch. You can't answer the question, so eliminate B. Look at (1) and (2) together. You still don't have any information about last year's batch, and you can't assume the 60% rate applies to them as well. You can't answer the question. Choose E.

18. **A** Start with statement (1). Before the break, Norman made 90% of 50, or 45 free throws. After the break, he made 60% of 50, or 30 free throws. The total is 45 + 30 = 75 successful free throws. You can answer the question, so narrow your choices to A and D. Look at statement (2). This statement doesn't help you because you don't know how many successful left-handed free throws or successful right-handed free throws he made. You can't find the total, so you can't answer the question. This eliminates D, so choose A.

19. **E** Start with statement (1). You can determine that there are 10 other ice cream eaters, but you don't know how many of them eat chocolate ice cream. You can't answer the question. Narrow your choices to B, C, and E. Look at statement (2). This leaves 15 other ice cream eaters, but you still don't know how many eat chocolate ice cream. You can't answer the question, so eliminate B. Look at statements (1) and (2) together. You may be tempted to think that 10 guests eat vanilla ice cream and 5 eat strawberry ice cream, leaving 5 to eat chocolate ice cream. However, you don't know whether any other flavors of ice cream (such as my favorite—mint chocolate chip) are available. You can't answer the question, so choose E.

20. **B** Start with statement (1). This is not enough because you need to know the weight of the bananas. You can't answer the question, so narrow the choices to B, C, and E. Look at statement (2). You can determine the toll, because it is $100 plus $0.50 × 800 = $400 for the cargo of bananas. You don't need to know the weight of the truck because that's not a factor in the toll. Choose B.

4

Terms of Endearment