Quant Concepts: DS Traps, Tricks, and Techniques

Directions: Each data sufficiency problem consists of a question and two statements, labeled (1) and (2), which contain certain data. Using these data and your knowledge of mathematics and everyday facts (such as the number of days in July or the meaning of the word counterclockwise), decide whether the data given are sufficient for answering the question and then indicate one of the following answer choices:

A. Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
B. Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
C. BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
D. EACH statement ALONE is sufficient.
E. Statements (1) and (2) TOGETHER are not sufficient.

Note: In data sufficiency problems that ask for the value of a quantity, the data given in the statements are sufficient only when it is possible to determine exactly one numerical value for the quantity.

Numbers: All numbers used are real numbers.

Figures:

(1) Figures conform to the information given in the question, but will not necessarily conform to the additional information given in statements (1) and (2).
(2) Lines shown as straight are straight, and lines that appear jagged are also straight.
(3) The positions of points, angles, regions, etc., exist in the order shown, and angle measures are greater than zero.
(4) All figures lie in a plane unless otherwise indicated.

DS Traps / Techniques:

- Simplify the question to the absolute basics… translate information as to what the question seeks to ask. Most of the DS questions can be simplified.
- Do not assume anything. For example, if a number is not mentioned to be an integer, don't assume it to be so.
- In geometrical figures, do not assume that a figure is what it looks like. If it is not mentioned that two lines are parallel, don't assume so. If a figure looks like a square but is not mentioned to be so, please do not assume it to be so.
- While evaluating Statement (2), don't "mentally" carry forward the information from Statement (1) to Statement (2). Statement (2) is independent of Statement (1) and vice-versa.
- In "WHAT" questions, a unique numerical value is required. There should be NO AMBIGUITY.
- In "IS" or "Does" type of questions, you must get a unique YES or a unique NO. There should be NO AMBIGUITY.
- An unambiguous "NO" is as acceptable as an unambiguous "YES".
- **Intentionally try to create a yes / no situation: don't try to prove or disprove alone… you should try both.**
- There is no need to calculate the answer in most cases. Avoid calculations, wherever possible.
- In a "WHAT" question, if two statements are not independently sufficient, but, on combining, result in a unique common value, then the common value will be the answer.
- The two statements never contradict each other.
- In questions involving the solving of two simultaneous equations, usually only one statement will be sufficient.

25 MOST IMPORTANT DS Questions to understand all types of DS traps

1. If $1,000 is deposited in a certain bank account and remains in the account along with any accrued interest, the dollar amount of interest, I, earned by deposit in the first n years is given by $I = 1{,}000((1+r/100)^n - 1)$, where r percent is the annual interest rate paid by the bank. Is the annual interest rate paid by the bank greater than 8%?
   (1) The deposit earns a total of $210 in interest in the first 2 years. (2) $(1+r/100)^2 > 1.15$

2. If $y \geq 0$, what is the value of x? (1) $|x - 3| \geq y$ (2) $|x - 3| \leq -y$

3. On the number line shown, is zero halfway between r and s? ——r——s————t——
   (1) s is right to the zero
   (2) The distance between t and r is the same as the distance between t and (–s)

4. If y is an integer and $y = x + |x|$, is $y = 0$? (1) $x < 0$ (2) $y < 1$

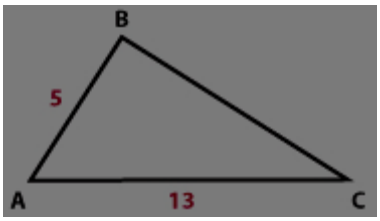
5. Is $x^4 + y^4 > z^4$? (1) $x^2 + y^2 > z^2$ (2) $x + y > z$

6. The integers m and p are such that $p > m > 2$, and m is not a factor of p. If r is the remainder when p is divided by m, is $r > 1$?
   (1) the greatest common factor of m and p is 2 (2) the least common multiple of m and p is 30

7. If x, y, and z are integers and xy + z is an odd integer, is x an even integer?
   (1) xy + xz is an even integer (2) y + xz is an odd integer

8. Is $1 / (a–b) < (b–a)$? (1) $a < b$ (2) $1 < |a–b|$

9. What is the length of segment BC?



   (1) Angle ABC is 90 degrees. (2) The area of the triangle is 30.

10. At least 100 students at a certain high school study Japanese. If 4 percent of the students at the school who study French also study Japanese, do more students at the school study French than Japanese?
    (1) 16 students at the school study both French and Japanese.
    (2) 10 percent of the students at the school who study Japanese also study French.

11. What is the value of x?
    (1) X^3 is a 2-digit positive odd integer. (2) X^4 is a 2-digit positive odd integer.

12. Is x negative? (1) X^2 is positive. (2) X^3 is non-positive.

13. Is n/18 an integer? (1) 5n/18 is an integer. (2) 3n/18 is an integer.

14. The sum of *n* consecutive positive integers is 45. What is the value of *n*?
    (1) *n* is even (2) $n < 9$

15. Is *x* a negative number?
    (1) x^2 is a positive number. (2) $x \cdot |y|$ is not a positive number.

16. What is *x*? (1) $|x| < 2$ (2) $|x| = 3x - 2$

17. What is the value of y? (1) $3|x^2 - 4| = y - 2$ (2) $|3 - y| = 11$

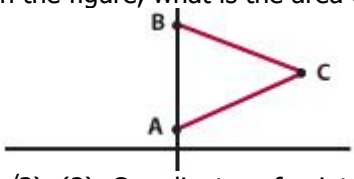
18. At a certain bookstore, each notepad costs x dollars and each markers costs y dollars. If $10 is enough to buy 5 notepads and 3 markers, is $10 enough to buy 4 notepads and 4 markers instead?
(1) Each notepad cost less than $1 (2) $10 is enough to buy 11 notepads

19. One kilogram of a certain coffee blend consists of X kilogram of type I and Y kilogram of type II. The cost of the blend is C dollars per kilogram, where C=6.5X + 8.5Y. Is X < 0.8?
(1) Y > 0.15 (2) C ≥ 7.30

20. Marta bought several pencils. If each pencil was either a 23-cent pencil or a 21-cent pencil, how many 23-cent pencils did Marta buy?
(1) Marta bought a total of 6 pencils.
(2) The total value of the pencils Marta bought was 130 cents.

21. Is the measure of one of the interior angles of quadrilateral ABCD equal to 60 degrees?
(1) Two of the interior angles of ABCD are right angles
(2) The degree measure of angle ABC is twice the degree measure of angle BCD

22. If points A and B are on the y–axis in the figure, what is the area of equilateral triangle ABC?



(1) Coordinates of point B are (0, 5√3). (2) Coordinates of point C are (6, 3√3).

23. What is the sum of the digits of the positive integer n where n < 99?
(1) n is divisible by the square of y. (2) y^4 is a two-digit positive odd integer.

24. Joanna bought only $0.15 stamps and $0.29 stamps. How many $0.15 stamps did she buy?
(1) She bought an equal number of $0.15 stamps and $0.29 stamps.
(2) She bought $4.40 worth of stamps.

25. If x is a positive integer, is x! + (x + 1) a prime number? (1) x < 10 (2) x is even