# Quantitative Questions

Data Sufficiency

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.

Example:
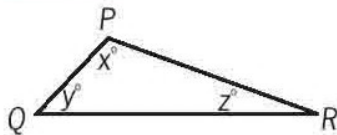
In $\triangle PQR$, what is the value of x?

(1) $PQ = PR$

(2) $y = 40$

Explanation: According to statement (1) $PQ = PR$; therefore, $\triangle PQR$ is isosceles and $y = z$. Since $x + y + z = 180$, it follows that $x + 2y = 180$. Since statement (1) does not give a value for y, you cannot answer the question using statement (1) alone. According to statement (2), $y = 40$; therefore, $x + z = 140$. Since statement (2) does not give a value for z, you cannot answer the question using statement (2) alone. Using both statements together, since $x + 2y = 180$ and the value of y is given, you can find the value of x. Therefore, BOTH statements (1) and (2) TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient.

Numbers: All numbers used are real numbers.

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

25. If the units digit of integer n is greater than 2, what is the units digit of n ?

    (1) The units digit of n is the same as the units digit of n^2.
    (2) The units digit of n is the same as the units digit of n^3.

26. What is the value of the integer p ?

    (1) Each of the integers 2, 3, and 5 is a factor of p.
    (2) Each of the integers 2, 5, and 7 is a factor of p.

27. If the length of Wanda's telephone call was rounded up to the nearest whole minute by her telephone company, then Wanda was charged for how many minutes for her telephone call?

    (1) The total charge for Wanda's telephone call was $6.50.
    (2) Wanda was charged $0.50 more for the first minute of the telephone call than for each minute after the first.

28. What is the perimeter of isosceles triangle MNP ?

    (1) $MN = 16$
    (2) $NP = 20$

29. In a survey of retailers, what percent had purchased computers for business purposes?

    (1) 85 percent of the retailers surveyed who owned their own store had purchased computers for business purposes.
    (2) 40 percent of the retailers surveyed owned their own store.

30. The only gift certificates that a certain store sold yesterday were worth either $100 each or $10 each. If the store sold a total of 20 gift certificates yesterday, how many gift certificates worth $10 each did the store sell yesterday?

    (1) The gift certificates sold by the store yesterday were worth a total of between $1,650 and $1,800.
    (2) Yesterday the store sold more than 15 gift certificates worth $100 each.

31. Is the standard deviation of the set of measurements $x_1, x_2, x_3, x_4, \ldots, x_{20}$ less than 3 ?

    (1) The variance for the set of measurements is 4.
    (2) For each measurement, the difference between the mean and that measurement is 2.

32. Is the range of the integers 6, 3, y, 4, 5, and x greater than 9 ?

    (1) $y > 3x$
    (2) $y > x > 3$

33. Is $\dfrac{5^{x+2}}{25} < 1$?

    (1) $5^x < 1$
    (2) $x < 0$

34. Of the companies surveyed about the skills they required in prospective employees, 20 percent required both computer skills and writing skills. What percent of the companies surveyed required neither computer skills nor writing skills?

    (1) Of those companies surveyed that required computer skills, half required writing skills.
    (2) 45 percent of the companies surveyed required writing skills but not computer skills.

35. What is the value of $w + q$?

    (1) $3w = 3 - 3q$
    (2) $5w + 5q = 5$

36. If X and Y are points in a plane and X lies inside the circle C with center O and radius 2, does Y lie inside circle C ?

    (1) The length of line segment XY is 3.
    (2) The length of line segment OY is 1.5.

37. Is $x > y$?

    (1) $x = y + 2$
    (2) $\dfrac{x}{2} = y - 1$

38. If Paula drove the distance from her home to her college at an average speed that was greater than 70 kilometers per hour, did it take her less than 3 hours to drive this distance?

    (1) The distance that Paula drove from her home to her college was greater than 200 kilometers.
    (2) The distance that Paula drove from her home to her college was less than 205 kilometers.

39. In the xy-plane, if line k has negative slope and passes through the point $(-5,r)$, is the x-intercept of line k positive?

    (1) The slope of line k is -5.
    (2) $r > 0$

40. If $5,000 invested for one year at p percent simple annual interest yields $500, what amount must be invested at k percent simple annual interest for one year to yield the same number of dollars?

    (1) $k = 0.8p$
    (2) $k = 8$

41. If $\dfrac{x+y}{z} > 0$, is $x < 0$?

    (1) $x < y$
    (2) $z < 0$

42. Does the integer k have at least three different positive prime factors?

    (1) $\dfrac{k}{15}$ is an integer.
    (2) $\dfrac{k}{10}$ is an integer.

43. In City X last April, was the average (arithmetic mean) daily high temperature greater than the median daily high temperature?

    (1) In City X last April, the sum of the 30 daily high temperatures was 2,160°.
    (2) In City X last April, 60 percent of the daily high temperatures were less than the average daily high temperature.

44. If m and n are positive integers, is $\left(\sqrt{m}\right)^n$ an integer?

    (1) $\left(\sqrt{m}\right)$ is an integer.
    (2) $\left(\sqrt{n}\right)$ is an integer.

45. Of the 66 people in a certain auditorium, at most 6 people have their birthdays in any one given month. Does at least one person in the auditorium have a birthday in January?

    (1) More of the people in the auditorium have their birthday in February than in March.
    (2) Five of the people in the auditorium have their birthday in March.

46. Last year the average (arithmetic mean) salary of the 10 employees of Company X was $42,800. What is the average salary of the same 10 employees this year?

    (1) For 8 of the 10 employees, this year's salary is 15 percent greater than last year's salary.
    (2) For 2 of the 10 employees, this year's salary is the same as last year's salary.

47. In a certain classroom, there are 80 books, of which 24 are fiction and 23 are written in Spanish. How many of the fiction books are written in Spanish?

    (1) Of the fiction books, there are 6 more that are not written in Spanish than are written in Spanish.
    (2) Of the books written in Spanish, there are 5 more nonfiction books than fiction books.

48. If p is the perimeter of rectangle Q, what is the value of p ?

    (1) Each diagonal of rectangle Q has length 10.
    (2) The area of rectangle Q is 48.

Quantitative Answer Keys

Quantitative

25.	E	41.	C
26.	E	42.	C
27.	E	43.	B
28.	E	44.	A
29.	E	45.	D
30.	A	46.	E
31.	D	47.	D
32.	C	48.	C
33.	D		
34.	C		
35.	D		
36.	B		
37.	A		
38.	B		
39.	E		
40.	D		