

CRITICAL REASONING

(6 questions)

1) The difficulty with the proposed high-speed train line is that a used plane can be bought for one-third the price of the train line, and the plane, which is just as fast, can fly anywhere. The train would be a fixed linear system, and we live in a world that is spreading out in all directions and in which consumers choose the free-wheel systems (cars, buses, aircraft), which do not have fixed routes. Thus a sufficient market for the train will not exist.

Which of the following, if true, most severely weakens the argument presented above?

- (a) Planes are not a free-wheel system because they can fly only between airports, which are less convenient for consumers than the high-speed train's stations would be.
- (b) Cars, buses, and planes require the efforts of drivers and pilots to guide them, whereas the train will be guided mechanically.
- (c) Cars and buses are not nearly as fast as the high-speed train will be.
- (d) The high-speed train line cannot use currently underutilized train stations in large cities.
- (e) For long trips, most people prefer to fly rather than to take ground-level transportation.

2) Parents often criticize schools for not doing their jobs. Many blame schools for low student achievement scores. Surprisingly, the most frequent and vociferous complaints come from those who live in districts where the achievement scores are high.

All of the following, considered individually, help to explain the apparent paradox EXCEPT:

- (a) Parents from districts of high achievers are very involved with the schools and are, therefore, more likely to make critical comments.
- (b) Parents have no knowledge of their district's own scores.
- (c) High scores cause parents' expectations to rise leading parents to demand that students achieve even more.
- (d) High-scoring districts contain low-achieving students whose parents are likely to complain when their children score below the local average.
- (e) Most complaints about schools come from political activists, most of whom live in high-achieving districts.

3) Last year the rate of inflation was 1.2 percent, but for the current year it has been 4 percent. We can conclude that inflation is on an upward trend and the rate will be still higher next year.

Which of the following, if true, most seriously weakens the conclusion above?

- (a) The inflation figures were computed on the basis of a representative sample of economic data rather than all of the available data.
- (b) Increases in the pay of some workers are tied to the level of inflation, and at an inflation rate of 4 percent or above, these pay raises constitute a force causing further inflation.
- (c) Last year a dip in oil prices brought inflation temporarily below its recent stable annual level of 4 percent.
- (d) The 1.2 percent rate of inflation last year represented a 10-year low.
- (e) Government intervention cannot affect the rate of inflation to any significant degree.

4) The average normal infant born in the United States weighs between twelve and fourteen pounds at the age of three months. Therefore, if a three-month- old child weighs only ten pounds, its weight gain has been below the United States average. Which of the following indicates a flaw in the reasoning above?

- (a) Weight is only one measure of normal infant development.
- (b) Some three-month- old children weigh as much as seventeen pounds.
- (c) The phrase "below average" does not necessarily mean insufficient.
- (d) Average weight gain is not the same as average weight.
- (e) It is possible for a normal child to weigh ten pounds at birth.

5) Time and time again, it has been shown that students who attend colleges with low student/faculty ratios get the most well-rounded education. As a result, when my children are ready for college, I'll be sure they attend a school with a very small student population.

Which of the following, if true, identifies the greatest flaw in the reasoning above?

- (a) A low student/faculty ratio is the effect of a well-rounded education, not its source
- (b) Intelligence should be considered the result of childhood environment, not advanced education
- (c) A very small student population does not, by itself, ensure a low student/faculty ratio
- (d) Parental desires and preferences rarely determine a child's choice of a college or university
- (e) Students must take advantage of the low student/faculty ratio by intentionally choosing small classes

6) Museums that house Renaissance oil paintings typically store them in environments that are carefully kept within narrow margins of temperature and humidity to inhibit any deterioration. Laboratory tests have shown that the kind of oil paint used in these paintings actually adjusts to climatic changes quite well. If, as some museums directors believe, paint is the most sensitive substance in these works, then by relaxing the standards for temperature and humidity control, museums can reduce energy costs without risking damage to these paintings. Museums would be rash to relax those standards, however, since results of preliminary tests indicate that gesso, a compound routinely used by Renaissance artists to help paint adhere to canvas, is unable to withstand significant variations in humidity.

In the argument above, the two underlined portions play which of the following roles?

- (a) The first is an objection that has been raised against the position taken by the argument; the second is the position taken by the argument
- (b) The first is the position taken by the argument; the second is the position that the argument calls into question
- (c) The first is a judgment that has been offered in support of the position that the argument calls into question; the second is a circumstance on which that judgment is, in part, based
- (d) The first is a judgment that has been offered in support of the position that the argument calls into question; the second is that position
- (e) The first is a claim that the argument calls into question; the second is the position taken by the argument

DATA SUFFICIENCY

(5 questions)

Directions: Each of the items below consists of a question followed by two statements, labeled (1) and (2). You must determine whether the information provided by the numbered statements is sufficient to answer the question asked. In addition to the information provided in the numbered statements, you should rely on your knowledge of mathematics and ordinary facts (such as the number of minutes in an hour).

On your answer sheet, write down:

- a. if statement (1), BY ITSELF is sufficient to answer the question, but statement (2) by itself is not sufficient to answer the question;
- b. if statement (2), BY ITSELF is sufficient to answer the question, but statement (1) by itself is not sufficient to answer the question;
- c. if BOTH statement (1) and (2) TOGETHER are sufficient to answer the question, but NEITHER statement BY ITSELF is sufficient to answer the question;
- d. if EACH statement BY ITSELF is sufficient to answer the question; and
- e. If the two statements, even when taken TOGETHER, are NOT sufficient to answer the question.

7) Can a batch of identical cookies be split evenly between Laurel and Jean without leftovers and without breaking a cookie?

(1) If the batch of cookies were split among Laurel, Jean and Marc, there would be one cookie left over.

(2) If Peter eats three of the cookies before they are split, there will be no leftovers when the cookies are split evenly between Laurel and Jean.

- (a)
- (b)
- (c)
- (d)
- (e)

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8) What percent of the music club members enrolled at a certain school are female students?

(1) Of the female students enrolled at the school, 60 percent are members of the music club.

(2) Of the male students enrolled at the school, 15 percent are members of the music club.

(a)

(b)

(c)

(d)

(e)

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9) Last year, a certain company began manufacturing product X and sold every unit of product X that it produced. Last year the company's total expenses for manufacturing product X were equal to \$200,000 plus 5 percent of the company's total revenue from all units of product X sold. If the company made a profit on product X last year, did the company sell more than 21,000 units of product X last year?

(1) The company's total revenue from the sale of product X last year was greater than \$220,000.

(2) For each unit of product X sold last year, the company's revenue was \$10.

(a)

(b)

(c)

(d)

(e)

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10) What is the area of the surface of a sphere inscribed in a cube?

(1) The ratio between the volume of the cube and the volume of the sphere is $6:\pi$

(2) The diagonal of the cube is 27

(a)

(b)

(c)

(d)

(e)

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11) A worker is hired for 7 days. He is paid \$25 more for each day of work than he was paid for the proceeding day of work. What was the total amount that he was paid for his 7 days of work?

(1) He had made 40% of the total by the end of the fourth day

(2) He was paid thrice as much for the last day as he was for the first day

(a)

(b)

(c)

(d)

(e)

PROBLEM SOLVING

(4 questions)

DIRECTIONS: Solve the problems and choose the best answer.

12) If $a = -0.6$, which of the following is true?

- (a) $a < a^2 < a^3$
- (b) $a < a^3 < a^2$
- (c) $a^2 < a < a^3$
- (d) $a^2 < a^3 < a$
- (e) $a^3 < a < a^2$

DIRECTIONS: Solve the problems and choose the best answer.

13) A password for a computer uses three distinct digits from 0 to 9. What is the probability that the password solely consists of prime numbers or zero?

- (a) $1/6$
- (b) $1/12$
- (c) $1/30$
- (d) $11/30$
- (e) $1/8$

DIRECTIONS: Solve the problems and choose the best answer.

14) The ratio of two quantities is 4 to 5. If each of the quantities is increased by 2, what is the ratio of these two new quantities?

- (a) 4:5
- (b) 6:7
- (c) 5:6
- (d) 8:11
- (e) It cannot be determined from the information given

DIRECTIONS: Solve the problems and choose the best answer.

15) Car A is 20 miles behind Car B, which is traveling in the opposite direction along the same route as Car A. Car A is traveling at a constant speed of 65 miles per hour and Car B is traveling at a constant speed of 55 miles per hour. Approximately how many minutes will it take for Car A and B be on a 20 miles distance from each other again?

- (a) 10
- (b) 200
- (c) 20
- (d) 45
- (e) 36

Answer Key:

Question	Answer	Question	Answer
1	A	9	B
2	B	10	B
3	C	11	D
4	D	12	B
5	C	13	B
6	D	14	E
7	B	15	C
8	E		