Graduate
Management
Admission
Council"

ETS®
**Educational
Testing Service**

Graduate Management Admission Test (GMAT®)

Disclosed Edition

Test Code 28

ABOUT THIS EDITION OF THE GMAT®

This booklet contains the questions that were used to derive scores on the edition of the Graduate Management Admission Test (GMAT®) with test code 28. If the first two digits of the test code on your answer sheet (item 5 on Side 1) are not 28, please contact ETS to send you the correct booklet to match your answer sheet. The answer key follows the test questions. This booklet also contains instructions for calculating raw scores corrected for guessing. These are followed by unique tables for converting raw scores to the reported scaled scores for test code 28.

In this edition of the GMAT, the following essay and multiple-choice sections contributed to your scores:

Analytical Writing Assessment

      Essay 1   Analysis of an Issue

      Essay 2   Analysis of an Argument

Verbal Assessment

      Section 2   Critical Reasoning

      Section 4   Reading Comprehension

      Section 6   Sentence Correction

Quantitative Assessment

      Section 3   Problem Solving

      Section 5   Problem Solving

      Section 7   Data Sufficiency

GMAT Total

      All six verbal and quantitative sections combined as one score

Section 1 in this edition of the GMAT contained trial or equating questions and does not contribute to your score. Questions from this section are not included in this booklet.

Essay 1

ANALYSIS OF AN ISSUE

Time—30 minutes

<u>Directions:</u> In this section, you will need to analyze the issue presented below and explain your views on it. The question has no "correct" answer. Instead, you should consider various perspectives as you develop your own position on the issue.

Read the statement and the instructions that follow it, and then make any notes in your test booklet that will help you plan your response. Begin writing your response on the separate answer document. Make sure that you use the answer document that goes with this writing task.

"Business relations are infected through and through with the disease of short-sighted motives. We are so concerned with immediate results and short-term goals that we fail to look beyond them."

Assuming that the term "business relations" can refer to the decisions and actions of any organization—for instance, a small family business, a community association, or a large international corporation—explain the extent to which you think that this criticism is valid. In your discussion of the issue, use reasons and/or examples form your own experience, your observation of others, or your reading.

NOTES

Use the space below or on the facing page to plan your response. Any writing on these pages will not be evaluated.

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

Essay 2

ANALYSIS OF AN ARGUMENT

Time—30 minutes

Directions: In this section, you will be asked to write a critique of the argument presented below. Note that your are <u>not</u> asked to present your own views on the subject. Instead, you may need to consider what questionable assumptions underlie the thinking, what alternative explanations or counterexamples might weaken the conclusion, or what sort of evidence could help strengthen or refute the argument.

Read the argument and the instructions that follow it, and then make any notes in your test booklet that will help you plan your response. Begin writing your response on the separate answer document. Make sure that you use the answer document that goes with this writing task.

The following appeared as part of a campaign to sell advertising time on a local radio station to local businesses.

"The Cumquat Café began advertising on our local radio station this year and was delighted to see its business increase by 10 percent over last year's totals. Their success shows you how you can use radio advertising to make *your* business more profitable."

Discuss how well reasoned you find this argument. In your discussion, be sure to analyze the line of reasoning and the use of evidence in the argument. You can also discuss what, if anything, would make the argument more sound and persuasive or would help you to better evaluate its conclusion.

NOTES

Use the space below or on the facing page to plan your response. Any writing on these pages will not he evaluated.

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

ANSWER Sheet – Test Code 28

Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	2.
3.	3.	3.	3.	3. Not Scored	3.
4.	4.	4.	4.	4.	4.
5.	5.	5.	5.	5.	5.
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8 .	8.	8.	8.	8.	8.
9.	9.	9.	9.	9.	9.
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11.	11.	11.	11.	11.	11.
12.	12.	12.	12.	12.	12.
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		19.		19.	19.
		20.		20.	20.
		21.		21.	
		22.		22.	
		23.			

Directions: For each question in this section, select the best of the answer choices given.

1. A report on acid rain concluded, "Most forests in Canada are not being damaged by acid rain." Critics of the report insist the conclusion be changed to, "Most forests in Canada do not show visible symptoms of damage by acid rain, such as abnormal loss of leaves, slower rates of growth, or higher mortality."

   Which of the following, if true, provides the best logical justification for the critics' insistence that the report's conclusion be changed?

   (A) Some forests in Canada are being damaged by acid rain.

   (B) Acid rain could be causing damage for which symptoms have not yet become visible.

   (C) The report does not compare acid rain damage to Canadian forests with acid rain damage to forests in other countries.

   (D) All forests in Canada have received acid rain during the past fifteen years.

   (E) The severity of damage by acid rain differs from forest to forest.

2. In the past most airline companies minimized aircraft weight to minimize fuel costs. The safest airline seats were heavy, and airlines equipped their planes with few of these seats. This year the seat that has sold best to airlines has been the safest one—a clear indication that airlines are assigning a higher priority to safe seating than to minimizing fuel costs.

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

   (A) Last year's best-selling airline seat was not the safest airline seat on the market.

   (B) No airline company has announced that it would be making safe seating a higher priority this year.

   (C) The price of fuel was higher this year than it had been in most of the years when the safest airline seats sold poorly.

   (D) Because of increases in the cost of materials, all airline seats were more expensive to manufacture this year than in any previous year.

   (E) Because of technological innovations, the safest airline seat on the market this year weighed less than most other airline seats on the market.

3. A computer equipped with signature-recognition software, which restricts access to a computer to those people whose signatures are on file, identifies a person's signature by analyzing not only the form of the signature but also such characteristics as pen pressure and signing speed. Even the most adept forgers cannot duplicate all of the characteristics the program analyzes.

   Which of the following can be logically concluded from the passage above?

   (A) The time it takes to record and analyze a signature makes the software impractical for everyday use.

   (B) Computers equipped with the software will soon be installed in most banks.

   (C) Nobody can gain access to a computer equipped with the software solely by virtue of skill at forging signatures.

   (D) Signature-recognition software has taken many years to develop and perfect.

   (E) In many cases even authorized users are denied legitimate access to computers equipped with the software.

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4. Division manager: I want to replace the Microton computers in my division with Vitech computers.

General manager: Why?

Division manager: It costs 28 percent less to train new staff on the Vitech.

General manager: But that is not a good enough reason. We can simply hire only people who already know how to use the Microton computer.

Which of the following, if true, most seriously undermines the general manager's objection to the replacement of Microton computers with Vitechs?

(A) Currently all employees in the company are required to attend workshops on how to use Microton computers in new applications.

(B) Once employees learn how to use a computer, they tend to change employers more readily than before.

(C) Experienced users of Microton computers command much higher salaries than do prospective employees who have no experience in the use of computers.

(D) The average productivity of employees in the general manager's company is below the average productivity of the employees of its competitors.

(E) The high costs of replacement parts make Vitech computers more expensive to maintain than Microton computers.

5. An airplane engine manufacturer developed a new engine model with safety features lacking in the earlier model, which was still being manufactured. During the first year that both were sold, the earlier model far outsold the new model; the manufacturer thus concluded that safety was not the customers' primary consideration.

Which of the following, if true, would most seriously weaken the manufacturer's conclusion?

(A) Both private plane owners and commercial airlines buy engines from this airplane engine manufacturer.

(B) Many customers consider earlier engine models better safety risks than new engine models, since more is usually known about the safety of the earlier models.

(C) Many customers of this airplane engine manufacturer also bought airplane engines from manufacturers who did not provide additional safety features in their newer models.

(D) The newer engine model can be used in all planes in which the earlier engine model can be used.

(E) There was no significant difference in price between the newer engine model and the earlier engine model.

6. Between 1975 and 1985, nursing-home occupancy rates averaged 87 percent of capacity, while admission rates remained constant, at an average of 95 admissions per 1,000 beds per year. Between 1985 and 1988, however, occupancy rates rose to an average of 92 percent of capacity, while admission rates declined to 81 per 1,000 beds per year.

If the statements above are true, which of the following conclusions can be most properly drawn?

(A) The average length of time nursing-home residents stayed in nursing homes increased between 1985 and 1988.

(B) The proportion of older people living in nursing homes was greater in 1988 than in 1975.

(C) Nursing home admission rates tend to decline whenever occupancy rates rise.

(D) Nursing homes built prior to 1985 generally had fewer beds than did nursing homes built between 1985 and 1988.

(E) The more beds a nursing home has, the higher its occupancy rate is likely to be.

7. Firms adopting "profit-related-pay" (PRP) contracts pay wages at levels that vary with the firm's profits. In the metalworking industry last year, firms with

PRP contracts in place showed productivity per worker on average 13 percent higher than that of their competitors who used more traditional contracts.

If, on the basis of the evidence above, it is argued that PRP contracts increase worker productivity, which of the following, if true, would most seriously weaken that argument?

(A) Results similar to those cited for the metalworking industry have been found in other industries where PRP contracts are used.

(B) Under PRP contracts costs other than labor costs, such as plant, machinery, and energy, make up an increased proportion of the total cost of each unit of output.

(C) Because introducing PRP contracts greatly changes individual workers' relationships to the firm, negotiating the introduction of PRP contracts is complex and time consuming.

(D) Many firms in the metalworking industry have modernized production equipment in the last five years, and most of these introduced PRP contracts at the same time.

(E) In firms in the metalworking industry where PRP contracts are in place, the average take-home pay is 15 percent higher than it is in those firms where workers have more traditional contracts.

8. Crops can be traded on the futures market before they are harvested. If a poor corn harvest is predicted, prices of corn futures rise; if a bountiful corn harvest is predicted, prices of corn futures fall. This morning meteorologists are predicting much-needed rain for the corn-growing region starting tomorrow. Therefore, since adequate moisture is essential for the current crop's survival, prices of corn futures will fall sharply today.

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

(A) Corn that does not receive adequate moisture during its critical pollination stage will not produce a bountiful harvest.

(B) Futures prices for corn have been fluctuating more dramatically this season than last season.

(C) The rain that meteorologists predicted for tomorrow is expected to extend well beyond the corn-growing region.

(D) Agriculture experts announced today that a disease that has devastated some of the corn crop will spread widely before the end of the growing season.

(E) Most people who trade in corn futures rarely take physical possession of the corn they trade.

9. A discount retailer of basic household necessities employs thousands of people and pays most of them at the minimum wage rate. Yet following a federally mandated increase of the minimum wage rate that increased the retailer's operating costs considerably, the retailer's profits increased markedly.

Which of the following, if true, most helps to resolve the apparent paradox?

(A) Over half of the retailer's operating costs consist of payroll expenditures; yet only a small percentage of those expenditures go to pay management salaries.

(B) The retailer's customer base is made up primarily of people who earn, or who depend on the earnings of others who earn, the minimum wage.

(C) The retailer's operating costs, other than wages, increased substantially after the increase in the minimum wage rate went into effect.

(D) When the increase in the minimum wage rate went into effect, the retailer also raised the wage rate for employees who had been earning just above minimum wage.

(E) The majority of the retailer's employees work as cashiers, and most cashiers are paid the minimum wage.

10. The cotton farms of Country Q became so productive that the market could not absorb all that they produced. Consequently, cotton prices fell. The government tried to boost cotton prices by offering farmers who took 25 percent of their cotton acreage out of production direct support payments up to a specified maximum per farm.

The government's program, if successful, will not be a net burden on the budget. Which of the following, if true, is the best basis for an explanation of how this could be so?

(A) Depressed cotton prices meant operating losses for cotton farms, and the government lost revenue from taxes on farm profits.

(B) Cotton production in several countries other than Q declined slightly the year that the support-payment program went into effect in Q.

(C) The first year that the support-payment program was in effect, cotton acreage in Q was 5% below its level in the base year for the program.

(D) The specified maximum per farm meant that for very large cotton farms the support payments were less per acre for those acres that were withdrawn from production than they were for smaller farms.

(E) Farmers who wished to qualify for support payments could not use the cotton acreage that was withdrawn from production to grow any other crop.

11. United States hospitals have traditionally relied primarily on revenues from paying patients to offset losses from unreimbursed care. Almost all paying patients now rely on governmental or private health insurance to pay hospital bills. Recently, insurers have been strictly limiting what they pay hospitals for the care of insured patients to amounts at or below actual costs.

Which of the following conclusions is best supported by the information above?

(A) Although the advance of technology has made expensive medical procedures available to the wealthy, such procedures are out of the reach of low-income patients.

(B) If hospitals do not find ways of raising additional income for unreimbursed care, they must either deny some of that care or suffer losses if they give it.

(C) Some patients have incomes too high for eligibility for governmental health insurance but are unable to afford private insurance for hospital care.

(D) If the hospitals reduce their costs in providing care, insurance companies will maintain the current level of reimbursement, thereby providing more funds for unreimbursed care.

(E) Even though philanthropic donations have traditionally provided some support for the hospitals, such donations are at present declining.

12. Generally scientists enter their field with the goal of doing important new research and accept as their colleagues those with similar motivation. Therefore, when any scientists wins renown as an expounder of science to general audiences, most other scientists conclude that this popularizer should no longer be regarded as a true colleague.

The explanation offered above for the low esteem in which scientific popularizers are held by research scientists assumes that

(A) serious scientific research is not a solitary activity, but relies on active cooperation among a group of colleagues

(B) research scientists tend not to regard as colleagues those scientist whose renown they envy

(C) a scientist can become a famous popularizer without having completed any important research

(D) research scientists believe that those who are well known as popularizes of science are not motivated to do important new research

(E) no important new research can be accessible to or accurately assessed by those who are not themselves scientists

13. Mouth cancer is a danger for people who rarely brush their teeth. In order to achieve early detection of mouth cancer in these individuals, a town's public health officials sent pamphlet to all town residents, describing how to perform weekly self-examinations of the mouth for lumps.

Which of the following, if true, is the best criticism of the pamphlet as a method of achieving the public health officials' goal?

(A) Many dental diseases produce symptoms that cannot be detected in a weekly self-examination.

(B) Once mouth cancer has been detected, the effectiveness of treatment can vary from person to person.

(C) The pamphlet was sent to all town residents, including those individuals who brush their teeth regularly.

(D) Mouth cancer is much more common in adults than in children.

(E) People who rarely brush their teeth are unlikely to perform a weekly examination of their mouth.

14. Technological improvements and reduced equipment costs have made converting solar energy directly into electricity far more cost-efficient in the last decade. However, the threshold of economic viability for solar power (that is, the price per barrel to which oil would have to rise in order for new solar power plants to be more economical than new oil-fired power plants) is unchanged at thirty-five dollars.

Which of the following, if true, does most to help explain why the increased cost-efficiency of solar power has not decreased its threshold of economic viability?

(A) The cost of oil has fallen dramatically.

(B) The reduction in the cost of solar-power equipment has occurred despite increased raw material costs for that equipment.

(C) Technological changes have increased the efficiency of oil-fired power plants.

(D) Most electricity is generated by coal-fired or nuclear, rather than oil-tired, power plants.

(E) When the price of oil increases, reserves of oil not previously worth exploiting become economically viable.

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15. Start-up companies financed by venture capitalists have a much lower failure rate than companies financed by other means. Source of financing, therefore, must be a more important causative factor in the success of a start-up company than are such factors as the personal characteristics of the entrepreneur, the quality of strategic planning, or the management structure of the company.

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

(A) Venture capitalists tend to be more responsive than other sources of financing to changes in a start-up company's financial needs.

(B) The strategic planning of a start-up company is a less important factor in the long-term success of the company than are the personal characteristics of the entrepreneur.

(C) More than half of all new companies fail within five years.

(D) The management structures of start-up companies are generally less formal than the management structures of ongoing businesses.

(E) Venture capitalists base their decisions to fund start-up companies on such factors as the characteristics of the entrepreneur and quality of strategic planning of the company.

16. The proportion of women among students enrolled in higher education programs has increased over the past decades. This is partly shown by the fact that in 1959, only 11 percent of the women between twenty and twenty-one were enrolled in college, while in 1981, 30 percent of the women between twenty and twenty-one were enrolled in college.

To evaluate the argument above, it would be most useful to compare 1959 and 1981 with regard to which of the following characteristics?

(A) The percentage of women between twenty and twenty-one who were not enrolled in college

(B) The percentage of women between twenty and twenty-five who graduated from college

(C) The percentage of women who, after attending college, entered highly paid professions

(D) The percentage of men between twenty and twenty-one who were enrolled in college

(E) The percentage of men who graduated from high school

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

<u>Directions:</u> In this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

<u>Numbers</u>: All numbers used are real numbers.

<u>Figures</u>: Figures that accompany problems in this section are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that its figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.

1. If p is an even integer and q is an odd integer, which of the following must be an odd integer?

    (A) $\frac{p}{q}$

    (B) pq
    (C) $2p + q$
    (D) $2(p + q)$
    (E) $\frac{3p}{q}$

2. A certain college has a student-to-teacher ratio of 11 to 1. The average (arithmetic mean) annual salary for teachers is $26,000. If the college pays a total of $3,380,000 in annual salaries to its teachers, how many students does the college have?

    (A) 130
    (B) 169
    (C) 1,300
    (D) 1,430
    (E) 1,560

3. Last year if 97 percent of the revenues of a company came from domestic sources and the remaining revenues, totaling $450,000, came from foreign sources, what was the total of the company's revenues?

    (A) $1,350,000
    (B) $1,500,000
    (C) $4,500,000
    (D) $15,000,000
    (E) $150,000,000

4. Drum X is $\frac{1}{2}$ full of oil and drum Y, which has twice the capacity of drum X, is $\frac{2}{3}$ full of oil. If all of the oil in drum X is poured into drum Y, then drum Y will be filled to what fraction of its capacity?

    (A) $\frac{3}{4}$

    (B) $\frac{5}{6}$

    (C) $\frac{11}{12}$

    (D) $\frac{7}{6}$

    (E) $\frac{11}{6}$

5. In a certain population, there are 3 times as many people aged twenty-one or under as there are people over twenty-one. The ratio of those twenty-one or under to the total population is

    (A) 1 to 2
    (B) 1 to 3
    (C) 1 to 4
    (D) 2 to 3
    (E) 3 to 4

6. $\frac{2 + 2\sqrt{6}}{2} =$

    (A) $\sqrt{6}$

    (B) $2\sqrt{6}$

    (C) $1 + \sqrt{6}$

    (D) $1 + 2\sqrt{6}$

    (E) $2 + \sqrt{6}$

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7. A certain telescope increases the visual range at a particular location from 90 kilometers to 150 kilometers. By what percent is the visual range increased by using the telescope?

(A) 30%
(B) $33\frac{1}{2}\%$
(C) 40%
(D) 60%
(E) $66\frac{2}{3}\%$
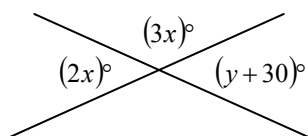
Note: Figure not drawn to scale.

8. In the figure above, the value of y is

(A) 6
(B) 12
(C) 24
(D) 36
(E) 42

9. A part-time employee whose hourly wage was increased by 25 percent decided to reduce the number of hours worked per week so that the employee's total weekly income would remain unchanged. By what percent should the number of hours worked be reduced?

(A) 12.5%
(B) 20%
(C) 25%
(D) 50%
(E) 75%

10. If $x > 0$, $\frac{x}{50} + \frac{x}{25}$ is what percent of x?

(A) 6%
(B) 25%
(C) $37\frac{1}{2}\%$
(D) 60%
(E) 75%

11. If the operation ◉ is defined for all a and b by the equation $a ◉ b = \frac{a^2 b}{3}$, then $2 ◉ (3 ◉ -1) =$

(A) 4
(B) 2
(C) $-\frac{4}{3}$
(D) -2
(E) -4

12. A factory that employs 1,000 assembly-line workers pays each of these workers $5 per hour for the first 40 hours worked during a week and 1½ times that rate for hours worked in excess of 40. What was the total payroll for the assembly-line workers for a week in which 30 percent of them worked 20 hours, 50 percent worked 40 hours, and the rest worked 50 hours?

(A) $180,000
(B) $185,000
(C) $190,000
(D) $200,000
(E) $205,000

13. If $x \neq 2$, then $\frac{3x^2(x-2) - x + 2}{x-2} =$

(A) $3x^2 - x + 2$
(B) $3x^2 + 1$
(C) $3x^2$
(D) $3x^2 - 1$
(E) $3x^2 - 2$

14. In a certain school, 40 more than $\frac{1}{3}$ of all the students are taking a science course and $\frac{1}{4}$ of those taking a science course are taking physics. If $\frac{1}{8}$ of all the students in the school are taking physics, how many students are in the school?

(A) 240
(B) 300
(C) 480
(D) 720
(E) 960

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15. If $d > 0$ and $0 < 1 - \frac{c}{d} < 1$, which of the following must be true?

    I. $c > 0$

    II. $\frac{c}{d} < 1$

    III. $c^2 + d^2 > 1$

(A) I only
(B) II only
(C) I and II only
(D) II and III only
(E) I, II, and III

16. The inside dimensions of a rectangular wooden box are 6 inches by 8 inches by 10 inches. A cylindrical canister is to be placed inside the box so that it stands upright when the closed box rests on one of its six faces. Of all such canisters that could be used, what is the radius, in inches, of the one that has the maximum volume?

(A) 3
(B) 4
(C) 5
(D) 6
(E) 8

STOP

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

Directions: Each passage in this group is followed by questions based on its content. After reading a passage, choose the best answer to each question and fill in the corresponding oval on the answer sheet. Answer all questions following a passage on the basis of what is <u>stated</u> or <u>implied</u> in that passage.

Historians of women's labor in the United States at first largely disregarded the story of female service workers — women earning wages in occupations such as salesclerk, domestic servant, and office secretary. These historians focused instead on factory work, primarily because it seemed so different from traditional, unpaid "women's work" in the home, and because the underlying economic forces of industrialism were presumed to be gender-blind and hence emancipatory in effect. Unfortunately, emancipation has been less profound than expected, for not even industrial wage labor has escaped continued sex segregation in the workplace.

To explain this unfinished revolution in the status of women, historians have recently begun to emphasize the way a prevailing definition of femininity often determines the kinds of work allocated to women, even when such allocation is inappropriate to new conditions. For instance, early textile-mill entrepreneurs in justifying women's employment in wage labor, made much of the assumption that women were by nature skillful at detailed tasks and patient in carrying out repetitive chores; the mill owners thus imported into the new industrial order hoary stereotypes associated with the homemaking activities they presumed to have been the purview of women. Because women accepted the more unattractive new industrial tasks more readily than did men, such jobs came to be regarded as female jobs. And employers, who assumed that women's "real" aspirations were for marriage and family life, declined to pay women wages commensurate with those of men. Thus many lower-skilled, lower-paid, less secure jobs came to be perceived as "female."

More remarkable than the origin has been the persistence of such sex segregation in twentieth-century industry. Once an occupation came to be perceived as "female," employers showed surprisingly little interest in changing that perception, even when higher profits beckoned. And despite the urgent need of the United States during the Second World War to mobilize its human resources fully, job segregation by sex characterized even the most important war industries. Moreover, once the war ended, employers quickly returned to men most of the "male" jobs that women had been permitted to master.

1. According to the passage, job segregation by sex in the United States was

(A) greatly diminished by labor mobilization during the Second World War

(B) perpetuated by those textile-mill owners who argued in favor of women's employment in wage labor

(C) one means by which women achieved greater job security

(D) reluctantly challenged by employers except when the economic advantages were obvious

(E) a constant source of labor unrest in the young textile industry

2. According to the passage, historians of women's labor focused on factory work as a more promising area of research than service-sector work because factory work

(A) involved the payment of higher wages

(B) required skill in detailed tasks

(C) was assumed to be less characterized by sex segregation

(D) was more readily accepted by women than by men

(E) fitted the economic dynamic of industrialism better

3. It can be inferred from the passage that early historians of women's labor in the United States paid little attention to women's employment in the service sector of the economy because

(A) the extreme variety of these occupations made it very difficult to assemble meaningful statistics about them

(B) fewer women found employment in the service sector than in factory work

(C) the wages paid to workers in the service sector were much lower than those paid in the industrial sector

(D) women's employment in the service sector tended to be much more short-term than in factory work

(E) employment in the service sector seemed to have much in common with the unpaid work associated with homemaking

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4. The passage supports which of the following statements about the early mill owners mentioned in the second paragraph?

(A) They hoped that by creating relatively unattractive "female" jobs they would discourage women from losing interest in marriage and family life.

(B) They sought to increase the size of the available labor force as a means to keep men's wages low.

(C) They argued that women were inherently suited to do well in particular kinds of factory work.

(D) They thought that factory work bettered the condition of women by emancipating them from dependence on income earned by men.

(E) They felt guilty about disturbing the traditional division of labor in the family.

5. It can be inferred from the passage that the "unfinished revolution" the author mentions in line 13 refers to the

(A) entry of women into the industrial labor market

(B) recognition that work done by women as homemakers should be compensated at rates comparable to those prevailing in the service sector of the economy

(C) development of a new definition of femininity unrelated to the economic forces of industrialism

(D) introduction of equal pay for equal work in all professions

(E) emancipation of women wage earners from gender-determined job allocation

6. The passage supports which of the following statements about hiring policies in the United States?

(A) After a crisis many formerly "male" jobs are reclassified as "'female" jobs.

(B) Industrial employers generally prefer to hire women with previous experience as homemakers.

(C) Post-Second World War hiring policies caused women to lose many of their wartime gains in employment opportunity.

(D) Even war industries during the Second World War were reluctant to hire women for factory work.

(E) The service sector of the economy has proved more nearly gender-blind in its hiring policies than has the manufacturing sector.

7. Which of the following words best expresses the opinion of the author of the passage concerning the notion that women are more skillful than men in carrying out detailed tasks?

(A) "patient" (line 21)

(B) "repetitive" (line 21)

(C) "hoary" (line 22)

(D) "homemaking" (line 23)

(E) "purview" (line 24)

8. Which of the following best describes the relationship of the final paragraph to the passage as a whole?

(A) The central idea is reinforced by the citation of evidence drawn from twentieth-century history

(B) The central idea is restated in such a way as to form a transition to a new topic for discussion.

(C) The central idea is restated and juxtaposed with evidence that might appear to contradict it.

(D) A partial exception to the generalizations of the central idea is dismissed as unimportant.

(E) Recent history is cited to suggest that the central idea's validity is gradually diminishing.

GO ON TO THE NEXT PAGE.

According to a recent theory, Archean-age gold-quartz vein systems were formed over two billion years ago from magmatic fluids that originated from molten granitelike bodies deep beneath the surface of the Earth. This theory is contrary to the widely held view that the systems were deposited from metamorphic fluids, that is, from fluids that formed during the dehydration of wet sedimentary rocks.

The recently developed theory has considerable practical importance. Most of the gold deposits discovered during the original gold rushes were exposed at the Earth's surface and were found because they had shed trails of alluvial gold that were easily traced by simple prospecting methods. Although these same methods still lead to an occasional discovery, most deposits not yet discovered have gone undetected because they are buried and have no surface expression.

The challenge in exploration is therefore to unravel the subsurface geology of an area and pinpoint the position of buried minerals. Methods widely used today include\ analysis of aerial images that yield a broad geological overview; geophysical techniques that provide date on the magnetic, electrical, and mineralogical properties of the rocks being investigated; and sensitive chemical tests that are able to detect the subtle chemical halos that often envelop mineralization. However, none of these high-technology methods are of any value if the sites to which they are applied have never mineralized, and to maximize the chances of discovery the explorer must therefore pay particular attention to selecting the ground formations most likely to be mineralized. Such ground selection relies to varying degrees on conceptual models, which take into account theoretical studies of relevant factors.

These models are constructed primarily from empirical observations of known mineral deposits and from theories of ore-forming processes. The explorer uses the models to identify those geological features that are critical to the formation of the mineralization being modeled, and then tries to select areas for exploration that exhibit as many of the critical features as possible.

Lines: (5), (10), (15), (20), (25), (30), (35)

9. The author is primarily concerned with

(A) advocating a return to an older methodology

(B) explaining the importance of a recent theory

(C) enumerating differences between two widely used methods

(D) describing events leading to a discovery

(E) challenging the assumptions on which a theory is based

10. According to the passage, the widely held view of Archean-age gold-quartz vein systems is that such systems

(A) were formed from metamorphic fluids

(B) originated in molten granitelike bodies

(C) were formed from alluvial deposits

(D) generally have surface expression

(E) are not discoverable through chemical tests

11. The passage implies that which of the following steps would be the first performed by explorers who wish to maximize their chances of discovering gold?

(A) Surveying several sites known to have been formed more than two billion years ago

(B) Limiting exploration to sites known to have been formed from metamorphic fluid

(C) Using an appropriate conceptual model to select a site for further exploration

(D) Using geophysical methods to analyze rocks over a broad area

(E) Limiting exploration to sites where alluvial gold has previously been found

12. Which of the following statements about discoveries of gold deposits is supported by information in the passage?

(A) The number of gold discoveries made annually has increased between the time of the original gold rushes and the present.

(B) New discoveries of gold deposits are likely to be the result of exploration techniques designed to locate buried mineralization.

(C) It is unlikely that newly discovered gold deposits will ever yield as much as did those deposits discovered during the original gold rushes.

(D) Modern explorers are divided on the question of the utility of simple prospecting methods as a source of new discoveries of gold deposits.

(E) Models based on the theory that gold originated from magmatic fluids have already led to new discoveries of gold deposits.

13. It can be inferred from the passage that which of the following is easiest to detect?

(A) A gold-quartz vein system originating in magmatic fluids

(B) A gold-quartz vein system originating in metamorphic fluids

(C) A gold deposit that is mixed with granite

(D) A gold deposit that has shed alluvial gold

(E) A gold deposit that exhibits chemical halos

GO ON TO THE NEXT PAGE.

14. The theory mentioned in line 1 relates to the conceptual models discussed in the passage in which of the following ways?

(A) It may furnish a valid account of ore-forming processes, and, hence, can support conceptual models that have great practical significance.

(B) It suggests that certain geological formations, long believed to be mineralized, are in fact mineralized, thus confirming current conceptual models.

(C) It suggests that there may not be enough similarity across Archean-age gold-quartz vein systems to warrant the formulation of conceptual models.

(D) It corrects existing theories about the chemical halos of gold deposits, and thus provides a basis for correcting current conceptual models.

(E) It suggests that simple prospecting methods still have a higher success rate in the discovery of gold deposits than do more modern methods.

15. According to the passage, methods of exploring for gold that are widely used today are based on which of the following facts?

(A) Most of the Earth's remaining gold deposits are still molten.

(B) Most of the Earth's remaining gold deposits are exposed at the surface.

(C) Most of the Earth's remaining gold deposits are buried and have no surface expression.

(D) Only one type of gold deposit warrants exploration, since the other types of gold deposits are found in regions difficult to reach.

(E) Only one type of gold deposit warrants exploration, since the other types of gold deposits are unlikely to yield concentrated quantities of gold.

16. It can be inferred from the passage that the efficiency of model-based gold exploration depends on which of the following?

I. The closeness of the match between the geological features identified by the model as critical and the actual geological features of a given area

II. The degree to which the model chosen relies on empirical observation of known mineral deposits rather than on theories of ore-forming processes

III. The degree to which the model chosen is based on an accurate description of the events leading to mineralization

(A) I only

(B) II only

(C) I and II only

(D) I and III only

(E) I, II, and III

GO ON TO THE NEXT PAGE.

While there is no blueprint for transforming a largely government-controlled economy into a free one, the experience of the United Kingdom since 1979 clearly
Line shows one approach that works: privatization, in which
(5) state-owned industries are sold to private companies. By 1979, the total borrowings and losses of state-owned industries were running at about £3 billion a year. By selling many of these industries, the government has decreased these borrowings and losses, gained over £34
(10) billion from the sales, and now receives tax revenues from the newly privatized companies. Along with a dramatically improved overall economy, the government has been able to repay 12.5 percent of the net national debt over a two-year period.
(15) In fact, privatization has not only rescued individual industries and a whole economy headed for disaster, but has also raised the level of performance in every area. At British Airways and British Gas, for example, productivity per employee has risen by 20 percent. At Associated
(20) British Ports, labor disruptions common in the 1970's and early 1980's have now virtually disappeared. At British Telecom, there is no longer a waiting list –as there always was before privatization –to have a telephone installed.
Part of this improved productivity has come about
(25) because the employees of privatized industries were given the opportunity to buy shares in their own companies. They responded enthusiastically to the offer of shares: at British Aerospace, 89 percent of the eligible work force bought shares; at Associated British Ports, 90 percent; and at
(30) British Telecom, 92 percent. When people have a personal stake in something, they think about it, care about it, work to make it prosper. At the National Freight Consortium, the new employee-owners grew so concerned about their company's profits that during wage negotiations they
(35) actually pressed their union to lower its wage demands.
Some economists have suggested that giving away free shares would provide a needed acceleration of the private-zation process. Yet they miss Thomas Paine's point that "what we obtain too cheap we esteem too lightly." In
(40) order for the far-ranging benefits of individual ownership to be achieved by owners, companies, and countries, employees and other individuals must make their own decisions to buy, and they must commit some of their own resources to the choice.

17. According to the passage, all of the following were benefits of privatizing state-owned industries in the United Kingdom EXCEPT:

(A) Privatized industries paid taxes to the government.

(B) The government gained revenue from selling state-owned industries.

(C) The government repaid some its national debt.

(D) Profits from industries that were still state-owned increased.

(E) Total borrowings and losses of state-owned industries decreased.

18. According to the passage, which of the following resulted in increased productivity in companies that have been privatized?

(A) A large number of employees chose to purchase shares in their companies.

(B) Free shares were widely distributed to individual shareholders.

(C) The government ceased to regulate major industries.

(D) Unions conducted wage negotiations for employees.

(E) Employee-owners agreed to have their wages lowered.

19. It can be inferred from the passage that the author considers labor disruptions to be

(A) an inevitable problem in a weak national economy

(B) a positive sign of employee concern about a company

(C) a predictor of employee reactions to a company's offer to sell shares to them

(D) a phenomenon found more often in state-owned industries than in private companies

(E) a deterrence to high performance levels in an industry

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20. The passage supports which of the following statements about employees buying shares in their own companies?

(A) At three different companies, approximately nine out of ten of the workers were eligible to buy shares in their companies.

(B) Approximately 90% of the eligible workers at three different companies chose to buy shares in their companies.

(C) The opportunity to buy shares was discouraged by at least some labor unions.

(D) Companies that demonstrated the highest productivity were the first to allow their employees the opportunity to buy shares.

(E) Eligibility to buy shares was contingent on employees' agreeing to increased work loads.

21. Which of the following statements is most consistent with the principle described in lines 30-32?

(A) A democratic government that decides it is inappropriate to own a particular industry has in no way abdicated its responsibilities as guardian of the public interest.

(B) The ideal way for a government to protect employee interests is to force companies to maintain their share of a competitive market without government subsidies.

(C) The failure to harness the power of self-interest is an important reason that state-owned industries perform poorly.

(D) Governments that want to implement privatization programs must try to eliminate all resistance to the free-market system.

(E) The individual shareholder will reap only a minute share of the gains from whatever sacrifices he or she makes to achieve these gains.

22. Which of the following can be inferred from the passage about the privatization process in the United Kingdom?

(A) It depends to a potentially dangerous degree on individual ownership of shares.

(B) It conforms in its most general outlines to Thomas Paine's prescription for business ownership.

(C) It was originally conceived to include some giving away of free shares.

(D) It has been successful, even though privatization has failed in other countries.

(E) It is taking place more slowly than some economists suggest is necessary.

23. The quotation in line 39 is most probably used to

(A) counter a position that the author of the passage believes is incorrect

(B) state a solution to a problem described in the previous sentence

(C) show how opponents of the viewpoint of the author of the passage have supported their arguments

(D) point out a paradox contained in a controversial viewpoint

(E) present a historical maxim to challenge the principle introduced in the third paragraph

STOP

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

Directions: In this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

Numbers: All numbers used are real numbers.

Figures: Figures that accompany problems in this section are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that its figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.

1. $\dfrac{\dfrac{1}{2}}{\dfrac{1}{4}+\dfrac{1}{6}} =$

(A) $\dfrac{6}{5}$

(B) $\dfrac{5}{6}$

(C) $\dfrac{5}{24}$

(D) $\dfrac{1}{5}$

(E) $\dfrac{1}{12}$

2. Kelly and Chris packed several boxes with books. If Chris packed 60 percent of the total number of boxes, what was the ratio of the number of boxes Kelly packed to the number of boxes Chris packed?

(A) 1 to 6
(B) 1 to 4
(C) 2 to 5
(D) 3 to 5
(E) 2 to 3

3. A train travels from New York City to Chicago, a distance of approximately 840 miles, at an average rate of 60 miles per hour and arrives in Chicago at 6:00 in the evening, Chicago time. At what time in the morning, New York City time, did the train depart for Chicago? (Note: Chicago time is one hour earlier than New York City time.)

(A) 4:00
(B) 5:00
(C) 6:00
(D) 7:00
(E) 8:00

4. Of the following, which is the closest approximation of $\dfrac{50.2 \times 0.49}{199.8}$?

(A) $\dfrac{1}{10}$

(B) $\dfrac{1}{8}$

(C) $\dfrac{1}{4}$

(D) $\dfrac{5}{4}$

(E) $\dfrac{25}{2}$

5. Last year Manfred received 26 paychecks. Each of his first 6 paychecks was $750; each of his remaining paychecks was $30 more than each of his first 6 paychecks. To the nearest dollar, what was the average (arithmetic mean) amount of his paychecks for the year?

(A) $752
(B) $755
(C) $765
(D) $773
(E) $775

GO ON TO THE NEXT PAGE.

6. A certain pair of used shoes can be repaired for $12.50 and will last for 1 year. A pair of the same kind of shoes can be purchased new for $28.00 and will last for 2 years. The average cost per year of the new shoes is what percent greater than the cost of repairing the used shoes?

(A) 3%
(B) 5%
(C) 12%
(D) 15%
(E) 24%

7. In a certain brick wall, each row of bricks above the bottom row contains one less brick than the row just below it. If there are 5 rows in all and a total of 75 bricks in the wall, how many bricks does the bottom row contain?

(A) 14
(B) 15
(C) 16
(D) 17
(E) 18

8. If 25 percent of p is equal to 10 percent of q, and $pq \neq 0$, then p is what percent of q?

(A) 2.5%
(B) 15%
(C) 20%
(D) 35%
(E) 40%

9. If the length of an edge of cube X is twice the length of an edge of cube Y, what is the ratio of the volume of cube Y to the volume of cube X?

(A) $\frac{1}{2}$

(B) $\frac{1}{4}$

(C) $\frac{1}{6}$

(D) $\frac{1}{8}$

(E) $\frac{1}{27}$

10. $\left(\sqrt{2}+1\right)\left(\sqrt{2}-1\right)\left(\sqrt{3}+1\right)\left(\sqrt{3}-1\right) =$

(A) 2
(B) 3
(C) $2\sqrt{6}$
(D) 5
(E) 6

11. In a certain calculus class, the ratio of the number of mathematics majors to the number of students who are not mathematics majors is 2 to 5. If 2 more mathematics majors were to enter the class, the ratio would be 1 to 2. How many students are in the class?

(A) 10
(B) 12
(C) 21
(D) 28
(E) 35

12. Machines A and B always operate independently and at their respective constant rates. When working alone, machine A can fill a production lot in 5 hours, and machine B can fill the same lot in x hours. When the two machines operate simultaneously to fill the production lot, it takes them 2 hours to complete the job. What is the value of x?

(A) $3\frac{1}{3}$

(B) 3

(C) $2\frac{1}{2}$

(D) $2\frac{1}{3}$

(E) $1\frac{1}{2}$

13. In the xy-coordinate system, if (a, b) and $(a + 3, b + k)$ are two points on the line defined by the equation $x = 3y - 7$, then $k =$

(A) 9
(B) 3
(C) $\frac{7}{3}$
(D) 1
(E) $\frac{1}{3}$

GO ON TO THE NEXT PAGE.

14. What is the units digit of $(13)^4(17)^2(29)^3$?

(A) 9
(B) 7
(C) 5
(D) 3
(E) 1
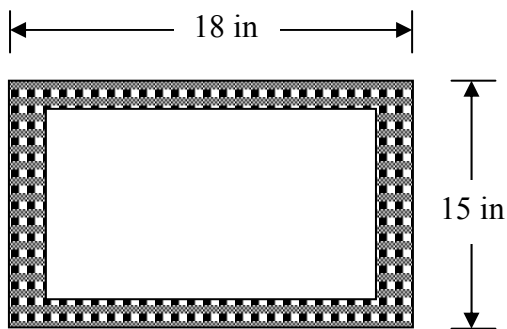
$\longleftarrow$ 18 in $\longrightarrow$

15 in

Note: Figure not drawn to scale.

15. The shaded region in the figure above represents a rectangular frame with length 18 inches and width 15 inches. The frame encloses a rectangular picture that has the same area as the frame itself. If the length and width of the picture have the same ratio as the length and width of the frame, what is the length of the picture, in inches?

(A) $9\sqrt{2}$
(B) $\frac{3}{2}$
(C) $\frac{9}{\sqrt{2}}$
(D) $15\left(1-\frac{1}{\sqrt{2}}\right)$
(E) $\frac{9}{2}$

Avenue A   Avenue B   Avenue C

4$^\text{th}$ Street Y

3$^\text{rd}$ Street

2$^\text{nd}$ Street

1$^\text{st}$ Street

X
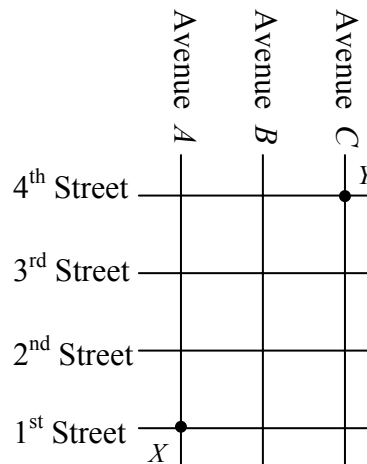
16. Pat will walk from intersection X to intersection Y along a route that is confined to the square grid of four streets and three avenues shown in the map above. How many routes from X to Y can Pat take that have the minimum possible length ?

(A) Six
(B) Eight
(C) Ten
(D) Fourteen
(E) Sixteen

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

Time—25 minutes

22 Questions

Directions: In each of the following sentences, some part of the sentence or the entire sentence is underlined. Beneath each sentence you will find five ways of phrasing the underlined part. The first of these repeats the original; the other four are different. If you think the original is the best of these answer choices, choose answer A; otherwise, choose one of the others. Select the best version and fill in the corresponding oval on your answer sheet.

This is a test of correctness and effectiveness of expression. In choosing answers, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, and sentence construction. Choose the answer that produces the most effective sentence; this answer should be clear and exact, without awkwardness, ambiguity, redundancy, or grammatical error.

1. Lawmakers are examining measures that would require banks to disclose all fees and account requirements in writing, provide free cashing of government checks, and to create basic savings accounts to carry minimal fees and require minimal initial deposits.

    (A) provide free cashing of government checks, and to create basic savings accounts to carry

    (B) provide free cashing of government checks, and creating basic savings accounts carrying

    (C) to provide free cashing of government checks, and creating basic savings accounts that carry

    (D) to provide free cashing of government checks, creating basic savings accounts to carry

    (E) to provide free cashing of government checks, and to create basic savings accounts that carry

2. Cajuns speak a dialect brought to southern Louisiana by the four thousand Acadians who migrated there in 1755; their language is basically seventeenth-century French to which has been added English, Spanish and Italian words.

    (A) to which has been added English, Spanish, and Italian words

    (B) added to which is English, Spanish, and Italian words

    (C) to which English, Spanish, and Italian words have been added

    (D) with English, Spanish, and Italian words having been added to it

    (E) and, in addition, English, Spanish, and Italian words are added

3. NOT SCORED

4. Unlike the United States, where farmers can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka are concentrated in the monsoon months, June to September, and the skies are generally clear for the rest of the year.

    (A) Unlike the United States, where farmers usually depend on rain or snow all year long, the rains in most parts of Sri Lanka

    (B) Unlike the United States farmers who can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka

    (C) Unlike those of the United States, where farmers can usually depend on rain or snow all year long, most parts of Sri Lanka's rains

    (D) In comparison with the United States, whose farmers can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka

    (E) In the United States, farmers can usually depend on rain or snow all year long, but in most parts of Sri Lanka the rains

5. Presenters at the seminar, one who is blind, will demonstrate adaptive equipment that allows visually impaired people to use computers.

    (A) one who

    (B) one of them who

    (C) and one of them who

    (D) one of whom

    (E) one of which

GO ON TO THE NEXT PAGE.

6. Dr. Tonegawa won the Nobel Prize for discovering how the body can constantly change its genes to fashion a seeming unlimited number of antibodies, each specifically targeted at an invading microbe or foreign substance.

(A) seeming unlimited number of antibodies, each specifically targeted at

(B) seeming unlimited number of antibodies, each targeted specifically to

(C) seeming unlimited number of antibodies, all specifically targeted at

(D) seemingly unlimited number of antibodies, all of them targeted specifically to

(E) seemingly unlimited number of antibodies, each targeted specifically at

7. It is possible that Native Americans originally have migrated to the Western Hemisphere over a bridge of land that once existed between Siberia and Alaska.

(A) have migrated to the Western Hemisphere over a bridge of land that once

(B) were migrating to the Western Hemisphere over a bridge of land that existed once

(C) migrated over a bridge of land to the Western Hemisphere that once existed

(D) migrated to the Western Hemisphere over a bridge of land that once existed

(E) were migrating to the Western Hemisphere over a bridge of land existing once

8. In the fall of 1985, only 10 percent of the women entering college planned to major in education, while 28 percent chose business, making it the most popular major for women as well as for men.

(A) as well as for men

(B) as well as the men

(C) and men too

(D) and men as well

(E) and also men

9. Because the Earth's crust is more solid there and thus better able to transmit shock waves, an earthquake of a given magnitude typically devastates an area 100 times greater in the eastern United States than it does in the West.

(A) of a given magnitude typically devastates an area 100 times greater in the eastern United States than it does in the West

(B) of a given magnitude will typically devastate 100 times the area if it occurs in the eastern United States instead of the West

(C) will typically devastate 100 times the area in the eastern United States than one of comparable magnitude occurring in the West

(D) in the eastern United States will typically devastate an area 100 times greater than will a quake of comparable magnitude occurring in the West

(E) that occurs in the eastern United States will typically devastate 100 times more area than if it occurred with comparable magnitude in the West

10. Although Napoleon's army entered Russia with far more supplies than they had in their previous campaigns, it had provisions for only twenty-four days.

(A) they had in their previous campaigns

(B) their previous campaigns had had

(C) they had for any previous campaign

(D) in their previous campaigns

(E) for any previous campaign

11. Certain pesticides can become ineffective if used repeatedly in the same place; one reason is suggested by the finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals.

(A) Certain pesticides can become ineffective if used repeatedly in the same place; one reason is suggested by the finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals.

(B) If used repeatedly in the same place, one reason that certain pesticides can become ineffective is suggested by the finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals.

(C) If used repeatedly in the same place, one reason certain pesticides can become ineffective is suggested by the finding that much larger populations of pesticide-degrading microbes are found in soils with a relatively long history of pesticide use than those that are free of such chemicals.

(D) The finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals is suggestive of one reason, if used repeatedly in the same place, certain pesticides can become ineffective.

(E) The finding of much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in those that are free of such chemicals suggests one reason certain pesticides can become ineffective if used repeatedly in the same place.

12. One view of the economy contends that a large drop in oil prices should eventually lead to lowering interest rates, as well as lowering fears about inflation a rally in stocks and bonds, and a weakening of the dollar.

(A) lowering interest rates, as well as lowering fears about inflation,

(B) a lowering of interest rates and of fears about inflation,

(C) a lowering of interest rates, along with fears about inflation,

(D) interest rates being lowered, along with fears about inflation,

(E) interest rates and fears about inflation being lowered, with

13. After the Civil War, contemporaries of Harriet Tubman's maintained that she has all of the qualities of a greater leader: coolness in the face of danger, an excellent sense of strategy, and an ability to plan in minute detail.

(A) Tubman's maintained that she has

(B) Tubman's maintained that she had

(C) Tubman's have maintained that she had

(D) Tubman maintained that she had

(E) Tubman had maintained that she has

14. From 1982 to 1987 sales of new small boats increased between five and ten percent annually.

(A) From 1982 to 1987 sales of new small boats increased between five and ten percent annually.

(B) Five to ten percent is the annual increase in sales of new small boats in the years 1982 to 1987.

(C) Sales of new small boats have increased annually five and ten percent in the years 1982 to 1987.

(D) Annually an increase of five to ten percent has occurred between 1982 and 1987 in the sales

(E) Occurring from 1982 to 1987 was an annual increase of five and ten percent in the sales of new small boats.

15. In recent years cattle breeders have increasingly used crossbreeding, in part that their steers should acquire certain characteristics and partly because crossbreeding is said to provide hybrid vigor.

(A) in part that their steers should acquire certain characteristics

(B) in part for the acquisition of certain characteristics in their steers

(C) partly because of their steers acquiring certain characteristics

(D) partly because certain characteristics should be acquired by their steers

(E) partly to acquire certain characteristics in their steers

GO ON TO THE NEXT PAGE.

16. The peaks of a mountain range, acting like rocks in a streambed, produce ripples in the air flowing over them; the resulting flow pattern, with crests and troughs that remain stationary although the air that forms them is moving rapidly, are known as "standing waves."

(A) crests and troughs that remain stationary although the air that forms them is moving rapidly, are

(B) crests and troughs that remain stationary although they are formed by rapidly moving air, are

(C) crests and troughs that remain stationary although the air that forms them is moving rapidly, is

(D) stationary crests and troughs although the air that forms them is moving rapidly, are

(E) stationary crests and troughs although they are formed by rapidly moving air, is

17. Like Auden, the language of James Merrill is chatty, arch, and conversational-given to complex syntactic flights as well as to prosaic free-verse strolls.

(A) Like Auden, the language of James Merrill

(B) Like Auden. James Merrill's language

(C) Like Auden's, James Merrill's language

(D) As with Auden, James Merrill's language

(E) As is Auden's the language of James Merrill

18. In the textbook publishing business, the second quarter is historically weak, because revenues are low and marketing expenses are high as companies prepare for the coming school year.

(A) low and marketing expenses are high as companies prepare

(B) low and their marketing expenses are high as they prepare

(C) low with higher marketing expenses in preparation

(D) low, while marketing expenses are higher to prepare

(E) low, while their marketing expenses are higher in preparation

19. Teratomas are unusual forms of cancer because they are composed of tissues such as tooth and bone not normally found in the organ in which the tumor appears.

(A) because they are composed of tissues such as tooth and bone

(B) because they are composed of tissues like tooth and bone that are

(C) because they are composed of tissues, like tooth and bone, tissues

(D) in that their composition, tissues such as tooth and bone, is

(E) in that they are composed of tissues such tooth and bone, tissues

20. The Senate approved immigration legislation that would grant permanent residency to millions of aliens currently residing here and if employers hired illegal aliens they would be penalized.

(A) if employers hired illegal aliens they would be penalized

(B) hiring illegal aliens would be a penalty for employers

(C) penalize employers who hire illegal aliens

(D) penalizing employers hiring illegal aliens

(E) employers to be penalized for hiring illegal aliens

21. Scientists have recently discovered what could be the largest and oldest living organism on Earth, a giant fungus that is an interwoven filigree of mushrooms and rootlike tentacles spawned by a single fertilized spore some 10,000 years ago and extending for more than 30 acres in the soil of a Michigan forest.

(A) extending

(B) extends

(C) extended

(D) it extended

(E) is extending

GO ON TO THE NEXT PAGE.

22. The period when the great painted caves at Lascaux and Altamira were occupied by Upper Paleolithic people <u>has been established by carbon-14 dating, but what is much more difficult to determine are</u> the reason for their decoration, the use to which primitive people put the caves, and the meaning of the magnificently depicted animals.

(A) has been established by carbon-14 dating, but what is much more difficult to determine are

(B) has been established by carbon-14 dating, but what is much more difficult to determine is

(C) have been established by carbon-14 dating, but what is much more difficult to determine is

(D) have been established by carbon-14 dating, but what is much more difficult to determine are

(E) are established by carbon-14 dating, but that which is much more difficult to determine is

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

Time —25 minutes

20 Questions

Directions: Each of the data sufficiency problems below 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 <u>sufficient</u> for answering the question. Using the data given in the statements <u>plus</u> your knowledge of mathematics and everyday facts (such as the number of days in July or the meaning of *counterclockwise*), you are to fill in oval

    A if statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

    B if statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;

    C if BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

    D if EACH statement ALONE is sufficient to answer the question asked;

    E if statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

Numbers: All numbers used are real numbers.

Figures: A figure in a data sufficiency problem will conform to the information given in

        the question, but will not necessarily conform to the additional information given

        in statements (1) and (2).

        You may assume that lines shown as straight are straight and that angle measures are greater than zero.

        You may assume that the positions of points, angles, regions, etc., exist in the order shown.

        All figures lie in a plane unless otherwise indicated.

Note: In questions 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?
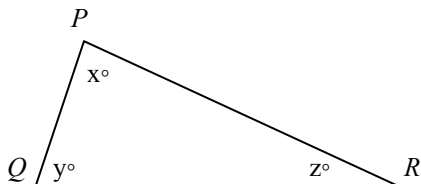
    (1) $PQ = PR$

    (2) $y = 40$

Explanation: According to statement (1), $PQ = PR$; therefore, 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, the answer is C.

GO ON TO THE NEXT PAGE.

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.

1. If the list price of a new car was $12,300, what was the cost of the car to the dealer?

    (1) The cost to the dealer was equal to 80 percent of the list price.

    (2) The car was sold for $11,070, which was 12.5 percent more than the cost to the dealer.

2. If p, q, x, y, and z are different positive integers, which of the five integers is the median?

    (1) $p + x < q$

    (2) $y < z$

3. A certain employee is paid $6 per hour for an 8-hour workday. If the employee is paid $1\frac{1}{2}$ times this rate time worked in excess of 8 hours during a single day, how many hours did the employee work today?

    (1) The employee was paid $18 more for hours worked today than for hours worked yesterday.

    (2) Yesterday the employee worked 8 hours.

4. If n is a member of the set

    $\{33, 36, 38, 39, 41, 42\}$,

    what is the value of n ?

    (1) n is even.

    (2) n is a multiple of 3.

5. What is the value of x ?

    (1) $2x + 1 = 0$

    (2) $(x+1)^2 = x^2$

    A   B   C   D
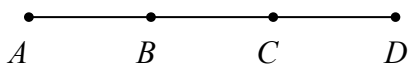
6. In the figure above, what is the length of AD ?

    (1) $AC = 6$

    (2) $BD = 6$

7. A retailer purchased a television set for x percent less than its list price, and then sold it for y percent less than the list price. What was the list price of the television set?

    (1) $x = 15$

    (2) $x - y = 5$

8. Is x^2 greater than x ?

    (1) x^2 is greater than 1 .

    (2) x is greater than -1 .

9. What is the value of $\frac{r}{2} + \frac{s}{2}$?

    (1) $\frac{r+s}{2} = 5$

    (2) $r + s = 10$

10. If x, y, and z are numbers, is $z = 18$?

    (1) The average (arithmetic mean) of $x, y,$ and z is 6.

    (2) $x = -y$
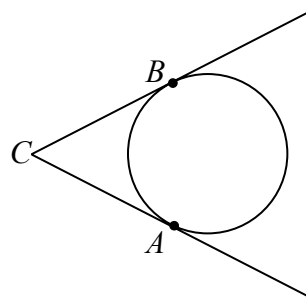
11. The circular base of an above-ground swimming pool lies in a level yard and just touches two straight sides of a fence at points A and B, as shown in the figure above. Point C is on the ground where the two sides of the fence meet. How far from the center of the pool's base is point A ?

    (1) The base has area 250 square feet.

    (2) The center of the base is 20 feet from point C .

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.

12.   In 1979 Mr. Jackson bought a total of n shares of stock X and Mrs. Jackson bought a total of 300 shares of stock X. If the couple held all of the respective shares throughout 1980, and Mr. Jackson's 1980 dividends on his n shares totaled $150, what was the total amount of Mrs. Jackson's 1980 dividends on her 300 shares?

(1) In 1980 the annual dividend on each share of stock X was $0.75.

(2) In 1979 Mr. Jackson bought a total of 200 shares of stock X.

13.   If Sara's age is exactly twice Bill's age, what is Sara's age?

(1) Four years ago, Sara's age was exactly 3 times Bill's age.

(2) Eight years from now, Sara's age will be exactly 1.5 times Bill's age.

14.   What is the value of $\dfrac{x}{yz}$?

(1) $x = \dfrac{y}{2}$ and $z = \dfrac{2x}{5}$.

(2) $\dfrac{x}{z} = \dfrac{5}{2}$ and $\dfrac{1}{y} = \dfrac{1}{10}$.

15.   An infinite sequence of positive integers is called an "alpha sequence" if the number of even integers in the sequence is finite. If S is an infinite sequence of positive integers, is S an alpha sequence?

(1) The first ten integers in S are even.

(2) An infinite number of integers in S are odd.

16   If $xy > 0$, does $(x - 1)(y - 1) = 1$?

(1) $x + y = xy$

(2) $x = y$

17.   After winning 50 percent of the first 20 games it played, Team A won all of the remaining games it played. What was the total number of games that Team A won?

(1) Team A played 25 games altogether.

(2) Team A won 60 percent of all the games it played.

$$\begin{array}{r} \square \\ + \Delta \\ \hline \bigstar \end{array}$$

18. In the addition problem above, each of the symbols
□, Δ, and ★ represents a positive digit. If □ < Δ ,
what is the value of Δ ?

(1) ★ = 4

(2) □ = 1

CANCELATION FEES

Days prior to departure	Percent of Package Price
46 or more	10%
45 – 31	35%
30 – 16	50%
15 – 5	65%
4 or fewer	100%

19. The table above shows the cancellation fee schedule
that a travel agency uses to determine the fee charged
to a tourist who cancels a trip prior to departure. If a
tourist canceled a trip with a package price of $1,700
and a departure date of September 4, on what day
was the trip canceled?

(1) The cancellation fee was $595.

(2) If the trip had been canceled one day later, the
cancellation fee would have been $255 more.

20. Is 5^k less than 1,000?

(1) $5^{k+1} > 3,000$

(2) $5^{k-1} = 5^k - 500$

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.

DO NOT TURN TO ANY OTHER SECTION IN THE TEST.

ANSWER KEY – Test Code 28

Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
1. B	1. C	1. B	1. A	1. E	1. D
2. E	2. D	2. C	2. E	2. C	2. E
3. C	3. D	3. E	3. B	3. Not Scored	3. C
4. C	4. C	4. C	4. B	4. E	4. E
5. B	5. E	5. E	5. D	5. D	5. D
6. A	6. C	6. C	6. C	6. E	6. E
7. D	7. E	7. C	7. D	7. D	7. E
8 .D	8. E	8. A	8. E	8. A	8. A
9. B	9. B	9. B	9. D	9. D	9. D
10. A	10. A	10. A	10. A	10. E	10. C
11. B	11. E	11. C	11. D	11. A	11.A
12. D	12. B	12. B	12. A	12. B	12. D
13. E	13. D	13. D	13. D	13. D	13. D
14. C	14. A	14. A	14. E	14. A	14. B
15. E	15.C	15. C	15. A	15. E	15. E
16. D	16. B	16. D	16. C	16. C	16. A
		17. D		17. C	17. D
		18. A		18. A	18. A
		19. E		19. E	19. C
		20. B		20. C	20. B
		21. C		21. A	
		22. E		22. B	
		23. A			

CONVERSION TABLE FOR VERBAL AND QUANTITATIVE SCORES

Graduate Management Admission Test, Code 28

	Scaled Score			Scaled Score			Scaled Score	
Corrected Raw Score	Verbal Score	Quantitative Score	Corrected Raw Score	Verbal Score	Quantitative Score	Corrected Raw Score	Verbal Score	Quantitative Score
			36	32	40	11	15	21
60	51		35	32	40	10	14	21
59	50		34	31	39	9	13	20
58	49		33	30	38	8	13	19
57	48		32	29	37	7	12	18
56	47		31	29	37	6	11	17
55	46		30	28	36	5	11	16
54	45		29	27	35	4	10	15
53	44		28	27	34	3	9	14
52	43	51	27	26	34	2	9	13
51	43	51	26	25	33	1	8	12
50	42	51	25	25	32	0	7	11
49	41	50	24	24	31			
48	41	50	23	23	31			
47	40	49	22	22	30			
46	39	48	21	22	29			
45	39	47	20	21	28			
44	38	47	19	20	28			
43	37	46	18	20	27			
42	36	45	17	19	26			
41	36	44	16	18	25			
40	35	44	15	18	25			
39	34	43	14	17	24			
38	34	42	13	16	23			
37	33	41	12	16	22			

CONVERSION TABLE FOR TOTAL SCORES
Graduate Management Admission Test, Code 28

Corrected Raw Score	Total Scaled Score	Corrected Raw Score	Total Scaled Score	Corrected Raw Score	Total Scaled Score	Corrected Raw Score	Total Scaled Score
		83	660	53	500	23	340
112	800	82	650	52	500	22	340
111	800	81	650	51	490	21	330
110	800	80	640	50	490	20	330
109	790	79	640	49	480	19	320
108	790	78	630	48	480	18	320
107	790	77	630	47	470	17	310
106	780	76	620	46	460	16	310
105	770	75	620	45	460	15	300
104	770	74	610	44	450	14	300
103	760	73	610	43	450	13	290
102	760	72	600	42	440	12	290
101	750	71	590	41	440	11	280
100	750	70	590	40	430	10	280
99	740	69	580	39	430	9	270
98	740	68	580	38	420	8	270
97	730	67	570	37	420	7	260
96	730	66	570	36	410	6	260
95	720	65	560	35	410	5	250
94	710	64	560	34	400	4	250
93	710	63	550	33	400	3	240
92	700	62	550	32	390	2	220
91	700	61	540	31	390	1	210
90	690	60	540	30	380	0	200
89	690	59	530	29	380		
88	680	58	530	28	370		
87	680	57	520	27	370		
86	670	56	520	26	360		
85	670	55	510	25	360		
84	660	54	510	24	350		

SCORING INFORMATION

Calculating and Verifying Your Multiple-Choice Scores

Proceed with the following steps.

1. As you match the responses on your answer sheet with the answer key on page 29, use marks to indicate whether each answer is correct or incorrect. Cross out any questions you omitted, or for which you marked more than one answer, because they are not counted in the scoring. The number of questions crossed out should equal the "raw score total omit" figure on your score report. The number of questions crossed out in the three sections that contributed to your verbal score and the similar number for the three sections that contributed to the quantitative score should match the "raw score verbal omit" and "raw score quantitative omit" figures on your score report.

2. Count the total number of questions you answered correctly in the three sections that contributed to the verbal score. This number should match the "raw score verbal right" figure on your score report.

3. Then count the total number of questions you answered incorrectly in these three sections. This number should match the "raw score verbal wrong" figure on your score report.

4. Divide the number answered incorrectly from Step 3 by four.

5. Subtract the result in Step 4 from the number answered correctly in Step 2. This is the correction for guessing.

6. Round the resulting number to the nearest whole number by adding .5 and then dropping all digits to the right of the decimal point. This number should equal the "verbal corrected raw score" figure on your score report.

■■■

The table below shows three examples of corrected raw score calculations based on 40 questions (total number of omitted or multiple-marked questions, number correct, and number wrong):

	Example 1	**Example 2**	**Example 3**
Step 1- Number omitted or multiple-marked……..	8	0	5
Step 2- Number correct…	20	25	30
Step 3- Number wrong….	12	15	5
Step 4- Number wrong in step 3 divided by 4……..	3	3.75	1.25
Step 5- Number in step 2 minus number in step 4	17	21.25	28.75
Step 6- Rounding- Add .5 to the number in step 5	17.5	21.75	29.25
Final raw score corrected for guessing: Drop all digits to the right of the decimal in step 6………..	17	21	29

Repeat these steps using the three sections contributing to the quantitative score to calculate your quantitative corrected raw score and all six sections contributing to the total score to obtain your total corrected raw score. The figures you calculate should match the respective figures on your score report. The sum of your verbal and quantitative corrected raw scores may be one point higher or lower than the total corrected raw score due to the rounding procedure for each score.

Conversion of Corrected Raw Scores to Scaled Scores

Use the score conversion tables on pages 30 and 31 to find the scaled score associated with each of your corrected raw scores. The equivalent scaled scores should match those on your score report.

Your Analytical Writing Scores

Analytical Writing Assessments are offered in this test preparation product for practice purposes only. When calculating the GMAT® equivalent score on GMAT Paper Tests, the essay portion should be ignored. When taking the GMAT®, the Analytical Writing Assessment results are reported on your official score report to schools.

Essay Insight (SM), available through www.mba.com, lets you write two practice essays on actual AWA topics and has them scored automatically by the same technology used to score the GMAT. Your scores are objective and accurate, so you can practice to improve.

Rescoring Service

If there are any discrepancies between your self-scoring results and those on your score report, you may request that ETS rescore your answer sheet by submitting the appropriate fee and the form for this purpose you're your *GMAT Examinee Score Interpretation Guide*. But first check your answer sheet from incomplete erasures or light or partial marking, and check your calculations to be sure that they are accurate.

Caveats Regarding Raw Score Interpretation

1.	The GMAT is designed to yield only the reported verbal, quantitative, and total scaled scores. One should not calculate raw scores or individual test sections and infer specific strengths or weaknesses from a comparison of the raw scores results by section. There are two reasons for this. First, different sections have different numbers of questions, and, even if the number were the same of if percentages were used to make the numbers comparable, the sections might not be equally difficult. For illustrative purposes only, suppose that one section had 20 items and another had 25. Furthermore, suppose you received corrected raw scores of 10 on the first and 10 on the second. It would be inappropriate to conclude that you had equal ability in the two sections because the corrected raw scores were equal, as you really obtained 50 percent for the first section and only 40 percent for the second. It would be equally inappropriate, however, to conclude from the percentages that you did better on the first section than on the second. Suppose the first section was relatively easy for most examinees (say, an average corrected raw score percentage across examines of 55 percent) and the second was relatively difficult (an average raw score percentage of 35 percent). Now you might conclude that you did less well than average on the first section and better than average on the second.

	Differences in difficulty level between editions are accounted for in the procedure for converting the verbal, quantitative, and total corrected raw scores to scaled scores. Since the corrected raw scores for individual sections are not converted to produce scales scores by section, performance on individual sections of the test cannot be compared.

	Second, corrected raw scores by section ate not converted to scaled scores by section because the GMAT is not designed to reliably measure specific strengths and weaknesses beyond the general verbal and quantitative abilities for which separate scaled scores are reported. Reliability is dependent, in part, on the number of questions in the test- the more questions, the higher the reliability. The relatively few

questions in each section, taken alone, are not sufficient to produce a reliable result for each section (see "Accuracy of the Scores" in the *GMAT Examinee Score Interpretation Guide.*) Only the reported verbal, quantitative, and total scaled scores (which are based on questions from several sections) have sufficient reliability to permit their use in counseling and predicting graduate school performance.

2.   It is possible, if you repeat the test, that your second raw scores corrected for guessing could be high than on the first test, but your scaled scores could be lower and vice versa. This is a result of the slight differences in difficulty level between editions of the test, which are taken into account when corrected raw scores are converted to the GMAT scaled scores. That is, for a given scaled score, a more difficult edition requires a lower corrected raw score and an easier edition requires a high corrected raw score.

Additional Information

If you have questions about any of the information in this booklet, please write to:

>   Graduate Management Admission Test
>   Educational Testing Service
>   P.O. Box 6102
>   Princeton, NJ 08541-6102

If you have questions about specific test questions, please indicate that test code and the number(s) of the question(s) as well as your query or comment.