



# PLAN<sup>®</sup> Test Content and Sample Test Questions

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## **ENGLISH TEST** (30 minutes)

**30 questions**—Usage/Mechanics

**20 questions**—Rhetorical Skills

**50 questions**

This test measures your understanding of standard written English with regard to punctuation, grammar and usage, and sentence structure (Usage/Mechanics)—as well as your understanding of the appropriate use of strategy, organization, and style in writing (Rhetorical Skills). Rather than emphasizing memorization of rules of grammar, the test stresses the analysis of the kinds of prose that students read and write in most high school and college programs. The test consists of four prose passages, each accompanied by a number of multiple-choice questions.

## **MATHEMATICS TEST** (40 minutes)

**22 questions**—Pre-Algebra/Algebra

**18 questions**—Geometry

**40 questions**

This test measures your achievement in solving practical quantitative problems. The skills learned in many first- and second-year high school courses (pre-algebra, first-year algebra, and plane geometry) are tested, but most of the questions (including those in geometry) emphasize content presented before the second year of high school. The test focuses on your ability to reason quantitatively rather than on memorized formulas or involved computations. All the questions are multiple choice. Use of calculators is permitted on the Mathematics Test.

## **READING TEST** (20 minutes)

**25 questions**

This test measures your reading comprehension by focusing on skills you use in studying written materials from a range of subject areas. These skills include referring to details in the passage, drawing conclusions,

and making comparisons and generalizations. Knowledge of information outside the passages, vocabulary taken out of context, and rules of formal logic are not tested.

The test consists of three prose passages typical of those encountered in high school courses: one passage in the social sciences, one in the humanities, and one in prose fiction. Each passage is followed by several multiple-choice questions.

## **SCIENCE TEST** (25 minutes)

**30 questions**

This test measures your scientific reasoning skills, based on material that is typically covered in first- and second-year high school general science courses, including topics in biology, chemistry, physics, geology, astronomy, and meteorology.

The test presents five sets of scientific information: two in the data representation format (graphs, tables, and other schematic forms), two in the research summaries format (descriptions of several related experiments), and one in the conflicting viewpoints format (two or more hypotheses that are inconsistent with one another). The multiple-choice questions that follow each set require you to understand the information provided, to examine critically the relationships between the information and the hypotheses developed, and to generalize from the information in order to draw conclusions or make predictions. The use of calculators is **not** permitted on the Science Test.

## **Sample Test Questions**

The following pages provide several sample test questions from each of the four PLAN<sup>®</sup> tests. They are intended to illustrate the general types of questions included in the PLAN tests. An answer key is provided at the end of each section.

## English Test

**Directions:** In the passage that follows, certain words and phrases are underlined and numbered. In the right-hand column, you will find alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is best, choose "NO CHANGE." In some cases, you will find in the right-hand column a question about the underlined part. You are to choose the best answer to the question.

You will also find questions about a section of the passage, or about the passage as a whole. These questions do not refer to an underlined portion of the passage, but rather are identified by a number or numbers in a box.

For each question, choose the alternative you consider best and fill in the corresponding oval on your answer folder. Read the passage through once before you begin to answer the questions that accompany it. For many of the questions, you must read several sentences beyond the question to determine the answer. Be sure that you have read far enough ahead each time you choose an alternative.

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### D. W. Griffith and the Art of the Close-Up

[1]

In the late 1890s, thousands of people crowded into penny arcades across the country to see a remarkable new invention: the movie. Seldom longer than one minute, the first movies were simply recordings of everyday events. A distantly speeding train<sup>1</sup> toward the camera or a man watering his garden—these were typical subjects.

[2]

Within ten years, the movies were telling ten-minute stories. But they were still primitive, because moviemakers were still recording the story from only one viewpoint, just as their predecessors recorded the speeding train. For example, supposing<sup>2</sup> the story called for a young man to propose marriage. The moviemaker would place the camera far from the stage, recording<sup>3</sup> the entire scene from this single position.

[3]

[1] It took the genius of D. W. Griffith to change this method of filming. [2] When we watch this proposal scene, he argued, our eyes move.

1. **A.** NO CHANGE  
**B.** train speeding distantly  
**C.** distant train speeding  
**D.** train, distantly speeding

2. **F.** NO CHANGE  
**G.** supposedly  
**H.** suppose  
**J.** I suppose

3. **A.** NO CHANGE  
**B.** turn the camera and record the entire scene, placing it far from  
**C.** record, place the camera far away, and turn to  
**D.** turn, start, and recording

[3] We watch the expressions on the faces of the characters; we look at the hands as the man presented the engagement ring to the woman.

4

[4] Why Griffith asked, can't the camera be our eyes?

5

[5] Why can't we have close-ups of the faces of the man and woman, or of the hands as the man gives his fiancée the ring?

[4]

Some said it wouldn't go over so big. Audiences would be confused if the screen were suddenly filled by a face, let alone a pair of hands and a ring! But Griffith proved the skeptics wrong. By carefully placing close-ups into his scenes, audiences could feel the actors' emotions and the story's suspense. By 1917, Griffith was so confident of his style that, he boldly filled the screen with a close-up of a woman's nervous hands to convey it's anguish at the injustice in the world. That close-up, in the film *Intolerance*, became famous.

4. F. NO CHANGE

G. presents

H. having presented

J. has presented

5. A. NO CHANGE

B. Why? Griffith asked, can't

C. Why? Griffith asked. Can't

D. Why, Griffith asked, can't

6. Which of the following sequences of sentences will make Paragraph 3 flow most logically?

F. NO CHANGE

G. 2, 1, 3, 5, 4

H. 3, 5, 1, 2, 4

J. 4, 5, 1, 2, 3

7. A. NO CHANGE

B. wouldn't be a big deal.

C. wouldn't go too good.

D. would never work.

8. F. NO CHANGE

G. audiences began a feeling for

H. he made audiences feel

J. audiences, he felt, would experience

9. A. NO CHANGE

B. which he boldly

C. that he boldly

D. that bold, he

10. F. NO CHANGE

G. its

H. to them

J. her

Question 11 asks about the preceding passage as a whole.

11. Suppose that the writer wanted to add the following sentence to the essay:

Film director Martin Scorsese, greatly influenced by the work of Griffith, labeled *Intolerance* one of the ten greatest films ever.

This sentence would most logically fit into:

A. Paragraph 1.

B. Paragraph 3.

C. the beginning of Paragraph 4.

D. the end of Paragraph 4.

### English Answer Key

- |      |      |       |
|------|------|-------|
| 1. C | 5. D | 9. C  |
| 2. H | 6. F | 10. J |
| 3. A | 7. D | 11. D |
| 4. G | 8. H |       |

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## Mathematics Test

**Directions:** Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer folder.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some

of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

- 
1. A certain school's enrollment increased 5% this year over last year's enrollment. If the school now has 1,260 students enrolled, how many students were enrolled last year?

- A. 1,020
- B. 1,197
- C. 1,200
- D. 1,255
- E. 1,323

2. In the figure below,  $A$ ,  $B$ ,  $C$ , and  $D$  are collinear;  $\overline{AD}$  is 35 units long;  $\overline{AC}$  is 22 units long; and  $\overline{BD}$  is 29 units long. How many units long is  $\overline{BC}$  ?

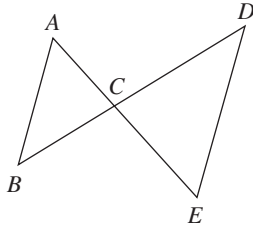


- F. 5
- G. 6
- H. 7
- J. 13
- K. 16

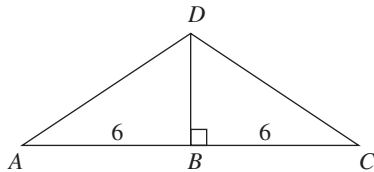
3. What is the slope of the line determined by the equation  $3x + y = 4$  ?

- A.  $-3$
- B.  $\frac{1}{3}$
- C.  $\frac{3}{4}$
- D. 1
- E. 3

4. In the figure below,  $\overline{AB}$  is parallel to  $\overline{DE}$ , and  $\overline{AE}$  intersects  $\overline{BD}$  at  $C$ . If the measure of  $\angle ABC$  is  $40^\circ$  and the measure of  $\angle CED$  is  $60^\circ$ , what is the measure of  $\angle BCE$ ?



- F.  $40^\circ$   
 G.  $60^\circ$   
 H.  $80^\circ$   
 J.  $100^\circ$   
 K.  $120^\circ$
5. Mark bought 3 shirts at a clothing store. Two of the shirts were priced at 2 for \$15.00. If the average cost of the 3 shirts was \$8.00, how much did Mark pay for the third shirt?
- A. \$ 7.00  
 B. \$ 7.67  
 C. \$ 8.50  
 D. \$ 9.00  
 E. \$16.50
6. For all  $a$  and  $b$ ,  $6a^2b^3 - 3a^2b$  is equivalent to which of the following expressions?
- F.  $3a^2b(2b^2)$   
 G.  $3a^2(2b^2 - 1)$   
 H.  $3ab(2ab^2 - 1)$   
 J.  $3a^2b(2b^2 - 1)$   
 K.  $a^2b(6b^2 - 1)$
7. In the figure below, points  $A$ ,  $B$ , and  $C$  are collinear, and  $\overline{AB}$  and  $\overline{BC}$  are each 6 units long. If the area of  $\triangle ACD$  is 24 square units, how many units long is the altitude  $\overline{BD}$ ?

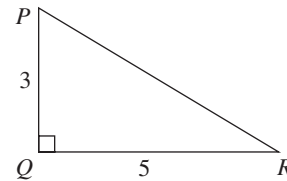


8. If  $3x - 10 = 24$ , then  $x = ?$
- F. 31  
 G. 18  
 H.  $11\frac{1}{3}$   
 J.  $4\frac{2}{3}$   
 K. -2

9. Sam has some quarters, nickels, and dimes. He has 4 more quarters than dimes and 3 more dimes than nickels. If  $n$  represents the number of nickels he has, which of the following represents, in cents, the total value of all his coins?

- A.  $40n + 205$   
 B.  $40n + 130$   
 C.  $40n + 7$   
 D.  $7n + 130$   
 E.  $3n + 10$

10. In  $\triangle PQR$  below,  $\angle PQR$  is a right angle;  $\overline{PQ}$  is 3 units long; and  $\overline{QR}$  is 5 units long. How many units long is  $\overline{PR}$ ?



- F. 2  
 G.  $2\sqrt{2}$   
 H. 4  
 J.  $\sqrt{34}$   
 K. 8
11. A straight line in the coordinate plane passes through the points with  $(x,y)$  coordinates  $(-1,1)$  and  $(2,3)$ . What are the  $(x,y)$  coordinates of the point at which the line passes through the  $y$ -axis?
- A.  $(-2,0)$   
 B.  $(0, \frac{2}{3})$   
 C.  $(0, \frac{5}{3})$   
 D.  $(0,2)$   
 E.  $(0, \frac{5}{2})$
12. If the integer  $5 \cdot 2^a$  is exactly divisible by just 8 positive integers, then  $a = ?$

- F. 3  
 G. 5  
 H. 7  
 J. 8  
 K. 9

**Mathematics Answer Key**

- |      |      |       |
|------|------|-------|
| 1. C | 5. D | 9. A  |
| 2. K | 6. J | 10. J |
| 3. A | 7. B | 11. C |
| 4. J | 8. H | 12. F |

## Reading Test

**Directions:** The passage below is followed by several questions. After reading the passage, choose the best answer to each question and fill in the corresponding oval on your answer folder. You may refer to the passage as often as necessary.

**PROSE FICTION:** This passage is adapted from Anne Tyler's novel *The Accidental Tourist* (©1985 by Anne Tyler Modarressi, et al.).

“Now, this is not your ordinary airplane,” Macon told Muriel. “I wouldn’t want you to get the wrong idea. This is what they call a commuter plane. It’s something a businessman would take, say, to hop to the nearest city for a day and make a few sales and hop back again.”

The plane he was referring to—a little fifteen-seater that resembled a mosquito or a gnat—stood just outside the door of the commuters’ waiting room. A girl in a parka was loading it with baggage. A boy was checking something on the wings. This appeared to be an airline run by teenagers. Even the pilot was a teenager, it seemed to Macon. He entered the waiting room, carrying a clipboard. He read off a list of names. “Marshall? Noble? Albright?” One by one the passengers stepped forward—just eight or ten of them. To each the pilot said, “Hey, how you doing.” He let his eyes rest longest on Muriel. Either he found her the most attractive or else he was struck by her outfit. She wore her highest heels, black stockings spattered with black net roses, and a flippy little fuchsia dress under a short fat coat that she referred to as her “fun fur.” Her hair was caught all to one side in a great bloom of frizz, and there was a silvery dust of some kind on her eyelids. Macon knew she’d overdone it, but at the same time he liked her considering this such an occasion.

The pilot propped open the door and they followed him outside, across a stretch of concrete, and up two rickety steps into the plane. Macon had to bend almost double as he walked down the aisle. They threaded between two rows of single seats, each seat as spindly as a folding chair. They found spaces across from each other and settled in. Other passengers struggled through, puffing and bumping into things. Last came the copilot, who had round, soft, baby cheeks and carried a can of Diet Pepsi. He slammed the door shut behind him and went up front to the controls. Not so much as a curtain hid the cockpit. Macon could lean out into the aisle and see the banks of knobs and gauges, the pilot positioning his headset, the copilot taking a final swig and setting his empty can on the floor.

“Now, on a bigger plane,” Macon called to Muriel as the engines roared up, “you’d hardly feel the takeoff. But here you’d better brace yourself.”

Muriel nodded, wide-eyed, gripping the seat ahead of her. “What’s that light that’s blinking in front of the pilot?” she asked.

50 “I don’t know.”

“What’s that little needle that keeps sweeping round and round?”

“I don’t know.”

He felt he’d disappointed her. “I’m used to jets, not these toys,” he told her. She nodded again, accepting that. It occurred to Macon that he was really a very worldly and well-traveled man.

The plane started taxiing. Every pebble on the runway jolted it; every jolt sent a series of creaks through the framework. They gathered speed. The crew, suddenly grave and professional, made complicated adjustments to their instruments. The wheels left the ground. “Oh!” Muriel said, and she turned to Macon with her face all lit up.

65 “We’re off,” he told her.

“I’m flying!”

1. Macon felt he’d disappointed Muriel because he had not:
  - A. complimented her on her dress.
  - B. taken her on a long trip.
  - C. been able to answer her questions.
  - D. chosen a more comfortable airline.
2. Which of the following sentences best describes Macon’s attitude toward Muriel as it is revealed in the passage?
  - F. Macon would like to impress Muriel.
  - G. Macon is indifferent to Muriel.
  - H. Macon resents Muriel’s good looks.
  - J. Macon is disappointed in Muriel.
3. When Macon compares the plane he and Muriel are on with a bigger plane (lines 39–46), he is preparing her for a:
  - A. smooth takeoff.
  - B. smooth flight.
  - C. short flight.
  - D. bumpy takeoff.

4. To get to the plane, Macon, Muriel, and the other passengers had to walk:
- F. across a concrete area from the waiting room.
  - G. through a concrete hallway.
  - H. down a long, dark aisle before reaching the door.
  - J. in front of the pilot and under two rickety steps.
5. The passage suggests that Muriel's flight on the commuter plane was an experience she:
- A. had looked forward to.
  - B. had had before.
  - C. had read about.
  - D. considered routine.
6. How did the pilot greet the passengers in the waiting room?
- F. Harshly
  - G. Jokingly
  - H. Casually
  - J. Formally
7. According to what Macon says, how could Macon's travel experience be most accurately described?
- A. He flies on commuter planes more often than on jets.
  - B. He flies on jets more often than on commuter planes.
  - C. He does not travel by plane very often.
  - D. He travels by car more often than by plane or train.
8. Since "not so much as a curtain hid the cockpit," Macon's view of the instrument panel and the crew was:
- F. hidden.
  - G. unobstructed.
  - H. frightening.
  - J. scenic.

**Reading Answer Key**

- |      |      |      |
|------|------|------|
| 1. C | 4. F | 7. B |
| 2. F | 5. A | 8. G |
| 3. D | 6. H |      |

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**Science Test**

**Directions:** The passage below is followed by several questions. After reading the passage, choose the best answer to each question and fill in the corresponding oval on your answer folder. You may refer to the passage as often as necessary.

You are NOT permitted to use a calculator on this test.

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The following figures contain information about how solar energy can be collected through the windows of a house. Figure 1 shows the percent of possible sunshine, Figure 2 the average outdoor temperature during the heating season, and Figure 3 the net heat gained (in British thermal units, Btu) per hour per square foot of window area.

Single- and double-pane windows admit about the same amount of sunlight, but a single pane allows more heat to escape from the house than does a double pane.

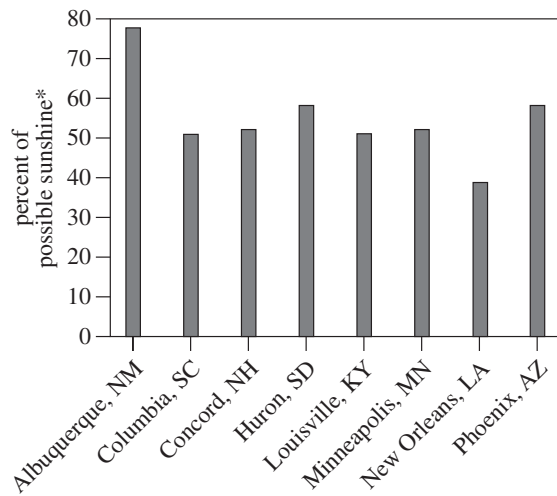


Figure 1

$$\text{*percent of possible sunshine} = \frac{\text{actual hours of direct sunlight}}{\text{possible hours of sunlight}} \times 100$$

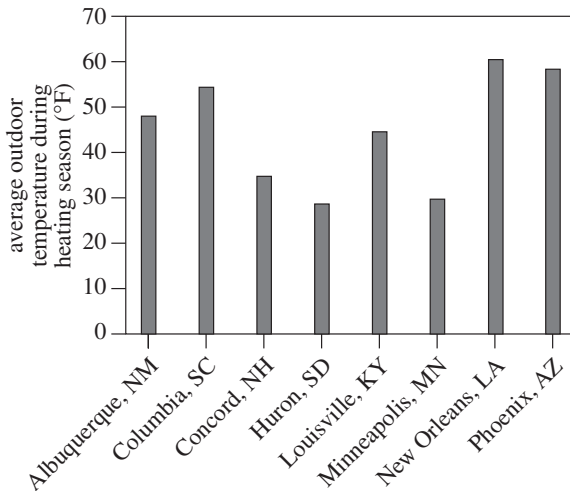


Figure 2

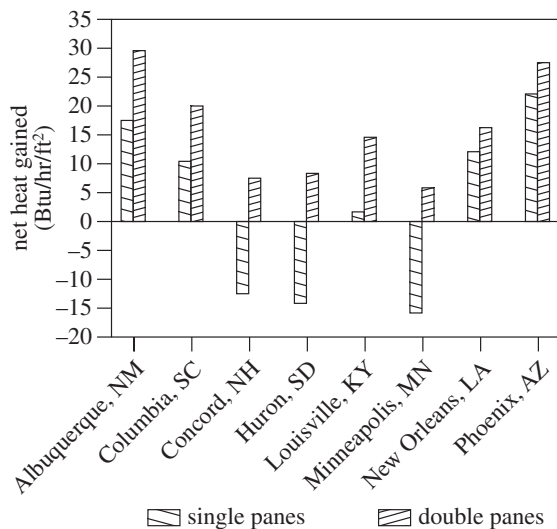


Figure 3

- According to the information in Figure 1, which of the following cities receives the LEAST percent of possible sunshine?
  - Albuquerque
  - Columbia
  - Louisville
  - New Orleans
- According to the information in Figure 3, the greatest heat gained through double-pane glass occurs in which of the following cities?
  - Albuquerque
  - Minneapolis
  - New Orleans
  - Phoenix
- According to the data, the greatest net heat *loss* through a single-pane window occurred in which city?
  - Concord
  - Huron
  - Minneapolis
  - Phoenix
- Indianapolis, Indiana, receives 51% possible sunshine and has an average temperature of 40.3°F during the heating season. On the basis of the data presented, the net heat gained by a double-pane window in Indianapolis would be approximately:
  - 15 Btu/hr/ft<sup>2</sup>.
  - 7 Btu/hr/ft<sup>2</sup>.
  - 11 Btu/hr/ft<sup>2</sup>.
  - 27 Btu/hr/ft<sup>2</sup>.
- Which of the following hypotheses about the relationship between the percent of possible sunshine and average outdoor temperature during the heating season is best supported by the data?
  - As the percent of possible sunshine increases, the average temperature decreases.
  - As the percent of possible sunshine increases, the average temperature increases.
  - The average temperature is not directly related to the percent of possible sunshine.
  - The percent of possible sunshine depends on the length of the heating season, rather than the average temperature.

**Science Answer Key**

- |      |      |
|------|------|
| 1. D | 4. H |
| 2. F | 5. C |
| 3. C |      |