

YOUR NAME (PRINT) \_\_\_\_\_ LAST FIRST MI

TEST CENTER \_\_\_\_\_ NUMBER NAME OF TEST CENTER ROOM NUMBER

# SAT Reasoning Test — General Directions

## Timing

- You will have 3 hours and 45 minutes to work on this test.
- There are ten separately timed sections:
  - ▶ One 25-minute essay
  - ▶ Six other 25-minute sections
  - ▶ Two 20-minute sections
  - ▶ One 10-minute section
- You may work on only one section at a time.
- The supervisor will tell you when to begin and end each section.
- If you finish a section before time is called, check your work on that section. You may NOT turn to any other section.
- Work as rapidly as you can without losing accuracy. Don't waste time on questions that seem too difficult for you.

## Marking Answers

- Carefully mark only one answer for each question.
- Make sure each mark is dark and completely fills the circle.
- Do not make any stray marks on your answer sheet.
- If you erase, do so completely. Incomplete erasures may be scored as intended answers.
- Use only the answer spaces that correspond to the question numbers.
- You may use the test book for scratchwork, but you will not receive credit for anything written there.
- After time has been called, you may not transfer answers to your answer sheet or fill in circles.
- You may not fold or remove pages or portions of a page from this book, or take the book or answer sheet from the testing room.

## Scoring

- For each correct answer, you receive one point.
- For questions you omit, you receive no points.
- For a wrong answer to a multiple-choice question, you lose one-fourth of a point.
  - ▶ If you can eliminate one or more of the answer choices as wrong, you increase your chances of choosing the correct answer and earning one point.
  - ▶ If you can't eliminate any choice, move on. You can return to the question later if there is time.
- For a wrong answer to a student-produced response ("grid-in") math question, you don't lose any points.
- The essay is scored on a 1 to 6 scale by two different readers. The total essay score is the sum of the two readers' scores.
- Off-topic essays, blank essays, and essays written in ink will receive a score of zero.

The passages for this test have been adapted from published material. The ideas contained in them do not necessarily represent the opinions of the College Board or ETS.

**IMPORTANT:** The codes below are unique to your test book. Copy them on your answer sheet in boxes 8 and 9 and fill in the corresponding circles exactly as shown.

<b>9</b>	<b>TEST FORM</b> (Copy from back of test book)

<b>8</b>				<b>FORM CODE</b>		
(Copy and grid as on back of test book.)						
(A)	(A)	(A)	(A)	(0)	(0)	(0)
(B)	(B)	(B)	(B)	(1)	(1)	(1)
(C)	(C)	(C)	(C)	(2)	(2)	(2)
(D)	(D)	(D)	(D)	(3)	(3)	(3)
(E)	(E)	(E)	(E)	(4)	(4)	(4)
(F)	(F)	(F)	(F)	(5)	(5)	(5)
(G)	(G)	(G)	(G)	(6)	(6)	(6)
(H)	(H)	(H)	(H)	(7)	(7)	(7)
(I)	(I)	(I)	(I)	(8)	(8)	(8)
(J)	(J)	(J)	(J)	(9)	(9)	(9)
(K)	(K)	(K)	(K)			
(L)	(L)	(L)	(L)			
(M)	(M)	(M)	(M)			
(N)	(N)	(N)	(N)			
(O)	(O)	(O)	(O)			
(P)	(P)	(P)	(P)			
(Q)	(Q)	(Q)	(Q)			
(R)	(R)	(R)	(R)			
(S)	(S)	(S)	(S)			
(T)	(T)	(T)	(T)			
(U)	(U)	(U)	(U)			
(V)	(V)	(V)	(V)			
(W)	(W)	(W)	(W)			
(X)	(X)	(X)	(X)			
(Y)	(Y)	(Y)	(Y)			
(Z)	(Z)	(Z)	(Z)			

**DO NOT OPEN THIS BOOK UNTIL THE SUPERVISOR TELLS YOU TO DO SO.**

# SAT Reasoning Test™



Use a No. 2 pencil on ALL sections of the answer sheet, including the essay. Be sure each mark is dark and completely fills the intended circle. Completely erase any errors or stray marks.

**1 Your Name:**  
(Print)

Last \_\_\_\_\_ First \_\_\_\_\_ M.I. \_\_\_\_\_

**I agree to the conditions on the back of the SAT® test book.**

Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Home Address: \_\_\_\_\_  
Number and Street \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Home Phone: (\_\_\_\_) \_\_\_\_\_ Center: \_\_\_\_\_  
(Print) \_\_\_\_\_ City \_\_\_\_\_ State/Country \_\_\_\_\_

**2 YOUR NAME**

Last Name (First 6 Letters)						First Name (First 4 Letters)				Mid. Init.
A	A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

**3 DATE OF BIRTH**

MONTH	DAY	YEAR
0	0	0
1	1	1
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3	3	3
4	4	4
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**5 SEX**

Female  Male

**6 REGISTRATION NUMBER**  
(Copy from Admission Ticket.)

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
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**4 ZIP CODE**

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
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5	5	5	5	5
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9	9	9	9	9

**7 SOCIAL SECURITY NUMBER**

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1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9

I am taking this test as a  
standby test-taker

**Important:** Fill in items 8 and 9 exactly as shown on the back of test book.

**9 TEST FORM**  
(Copy from back of test book.)

**8 FORM CODE**  
(Copy and grid as on back of test book.)

0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

**10 TEST BOOK SERIAL NUMBER**  
(Copy from front of test book.)

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2	2	2	2	2	2	2	2	2	2
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4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
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**11 TEST CENTER**  
(Supplied by Test Center Supervisor.)

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**FOR OFFICIAL USE ONLY**

0	1	2	3	4	5	6
0	1	2	3	4	5	6
0	1	2	3	4	5	6

SECTION

1

- I prefer NOT to grant the College Board the right to use, reproduce, or publish my essay for any purpose beyond the assessment of my writing skills, even though my name will not be used in any way in conjunction with my essay. I understand that I am free to mark this circle with no effect on my score.

**IMPORTANT: Use a No. 2 PENCIL. Do NOT write outside the border!**

Words written outside the essay box or written in ink **WILL NOT APPEAR** in the copy sent to be scored, and your score will be affected.

Begin your essay on this page. If you need more space, continue on the next page.

A large rectangular box containing 25 horizontal lines for writing an essay.





Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank. Be sure to erase any errors or stray marks completely.

**SECTION**

**2**

- |                |                |                |                |
|----------------|----------------|----------------|----------------|
| 1 (A B C D E)  | 11 (A B C D E) | 21 (A B C D E) | 31 (A B C D E) |
| 2 (A B C D E)  | 12 (A B C D E) | 22 (A B C D E) | 32 (A B C D E) |
| 3 (A B C D E)  | 13 (A B C D E) | 23 (A B C D E) | 33 (A B C D E) |
| 4 (A B C D E)  | 14 (A B C D E) | 24 (A B C D E) | 34 (A B C D E) |
| 5 (A B C D E)  | 15 (A B C D E) | 25 (A B C D E) | 35 (A B C D E) |
| 6 (A B C D E)  | 16 (A B C D E) | 26 (A B C D E) | 36 (A B C D E) |
| 7 (A B C D E)  | 17 (A B C D E) | 27 (A B C D E) | 37 (A B C D E) |
| 8 (A B C D E)  | 18 (A B C D E) | 28 (A B C D E) | 38 (A B C D E) |
| 9 (A B C D E)  | 19 (A B C D E) | 29 (A B C D E) | 39 (A B C D E) |
| 10 (A B C D E) | 20 (A B C D E) | 30 (A B C D E) | 40 (A B C D E) |

**SECTION**

**3**

- |                |                |                |                |
|----------------|----------------|----------------|----------------|
| 1 (A B C D E)  | 11 (A B C D E) | 21 (A B C D E) | 31 (A B C D E) |
| 2 (A B C D E)  | 12 (A B C D E) | 22 (A B C D E) | 32 (A B C D E) |
| 3 (A B C D E)  | 13 (A B C D E) | 23 (A B C D E) | 33 (A B C D E) |
| 4 (A B C D E)  | 14 (A B C D E) | 24 (A B C D E) | 34 (A B C D E) |
| 5 (A B C D E)  | 15 (A B C D E) | 25 (A B C D E) | 35 (A B C D E) |
| 6 (A B C D E)  | 16 (A B C D E) | 26 (A B C D E) | 36 (A B C D E) |
| 7 (A B C D E)  | 17 (A B C D E) | 27 (A B C D E) | 37 (A B C D E) |
| 8 (A B C D E)  | 18 (A B C D E) | 28 (A B C D E) | 38 (A B C D E) |
| 9 (A B C D E)  | 19 (A B C D E) | 29 (A B C D E) | 39 (A B C D E) |
| 10 (A B C D E) | 20 (A B C D E) | 30 (A B C D E) | 40 (A B C D E) |

**CAUTION**

Use the answer spaces in the grids below for SECTION 2 or SECTION 3 only if you are told to do so in your test book.

**Student-Produced Responses**

ONLY ANSWERS ENTERED IN THE CIRCLES IN EACH GRID WILL BE SCORED. YOU WILL NOT RECEIVE CREDIT FOR ANYTHING WRITTEN IN THE BOXES ABOVE THE CIRCLES.

9

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14

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16

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8	8	8	8
9	9	9	9

17

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18

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8	8	8	8
9	9	9	9

Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank. Be sure to erase any errors or stray marks completely.

**SECTION  
4**

- |    |                     |    |                     |    |                     |    |                     |
|----|---------------------|----|---------------------|----|---------------------|----|---------------------|
| 1  | (A) (B) (C) (D) (E) | 11 | (A) (B) (C) (D) (E) | 21 | (A) (B) (C) (D) (E) | 31 | (A) (B) (C) (D) (E) |
| 2  | (A) (B) (C) (D) (E) | 12 | (A) (B) (C) (D) (E) | 22 | (A) (B) (C) (D) (E) | 32 | (A) (B) (C) (D) (E) |
| 3  | (A) (B) (C) (D) (E) | 13 | (A) (B) (C) (D) (E) | 23 | (A) (B) (C) (D) (E) | 33 | (A) (B) (C) (D) (E) |
| 4  | (A) (B) (C) (D) (E) | 14 | (A) (B) (C) (D) (E) | 24 | (A) (B) (C) (D) (E) | 34 | (A) (B) (C) (D) (E) |
| 5  | (A) (B) (C) (D) (E) | 15 | (A) (B) (C) (D) (E) | 25 | (A) (B) (C) (D) (E) | 35 | (A) (B) (C) (D) (E) |
| 6  | (A) (B) (C) (D) (E) | 16 | (A) (B) (C) (D) (E) | 26 | (A) (B) (C) (D) (E) | 36 | (A) (B) (C) (D) (E) |
| 7  | (A) (B) (C) (D) (E) | 17 | (A) (B) (C) (D) (E) | 27 | (A) (B) (C) (D) (E) | 37 | (A) (B) (C) (D) (E) |
| 8  | (A) (B) (C) (D) (E) | 18 | (A) (B) (C) (D) (E) | 28 | (A) (B) (C) (D) (E) | 38 | (A) (B) (C) (D) (E) |
| 9  | (A) (B) (C) (D) (E) | 19 | (A) (B) (C) (D) (E) | 29 | (A) (B) (C) (D) (E) | 39 | (A) (B) (C) (D) (E) |
| 10 | (A) (B) (C) (D) (E) | 20 | (A) (B) (C) (D) (E) | 30 | (A) (B) (C) (D) (E) | 40 | (A) (B) (C) (D) (E) |

**SECTION  
5**

- |    |                     |    |                     |    |                     |    |                     |
|----|---------------------|----|---------------------|----|---------------------|----|---------------------|
| 1  | (A) (B) (C) (D) (E) | 11 | (A) (B) (C) (D) (E) | 21 | (A) (B) (C) (D) (E) | 31 | (A) (B) (C) (D) (E) |
| 2  | (A) (B) (C) (D) (E) | 12 | (A) (B) (C) (D) (E) | 22 | (A) (B) (C) (D) (E) | 32 | (A) (B) (C) (D) (E) |
| 3  | (A) (B) (C) (D) (E) | 13 | (A) (B) (C) (D) (E) | 23 | (A) (B) (C) (D) (E) | 33 | (A) (B) (C) (D) (E) |
| 4  | (A) (B) (C) (D) (E) | 14 | (A) (B) (C) (D) (E) | 24 | (A) (B) (C) (D) (E) | 34 | (A) (B) (C) (D) (E) |
| 5  | (A) (B) (C) (D) (E) | 15 | (A) (B) (C) (D) (E) | 25 | (A) (B) (C) (D) (E) | 35 | (A) (B) (C) (D) (E) |
| 6  | (A) (B) (C) (D) (E) | 16 | (A) (B) (C) (D) (E) | 26 | (A) (B) (C) (D) (E) | 36 | (A) (B) (C) (D) (E) |
| 7  | (A) (B) (C) (D) (E) | 17 | (A) (B) (C) (D) (E) | 27 | (A) (B) (C) (D) (E) | 37 | (A) (B) (C) (D) (E) |
| 8  | (A) (B) (C) (D) (E) | 18 | (A) (B) (C) (D) (E) | 28 | (A) (B) (C) (D) (E) | 38 | (A) (B) (C) (D) (E) |
| 9  | (A) (B) (C) (D) (E) | 19 | (A) (B) (C) (D) (E) | 29 | (A) (B) (C) (D) (E) | 39 | (A) (B) (C) (D) (E) |
| 10 | (A) (B) (C) (D) (E) | 20 | (A) (B) (C) (D) (E) | 30 | (A) (B) (C) (D) (E) | 40 | (A) (B) (C) (D) (E) |

**CAUTION**

Use the answer spaces in the grids below for SECTION 4 or SECTION 5 only if you are told to do so in your test book.

**Student-Produced Responses**

ONLY ANSWERS ENTERED IN THE CIRCLES IN EACH GRID WILL BE SCORED. YOU WILL NOT RECEIVE CREDIT FOR ANYTHING WRITTEN IN THE BOXES ABOVE THE CIRCLES.

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Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank. Be sure to erase any errors or stray marks completely.

SECTION

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SECTION

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**You may use this space to make notes for your essay. Remember, however, that you will receive credit ONLY for what is written on your answer sheet.**

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NOTES ONLY

Write essay on answer  
sheet!



## ESSAY

Time — 25 minutes

Turn to page 2 of your answer sheet to write your ESSAY.

The essay gives you an opportunity to show how effectively you can develop and express ideas. You should, therefore, take care to develop your point of view, present your ideas logically and clearly, and use language precisely.

Your essay must be written on the lines provided on your answer sheet—you will receive no other paper on which to write. You will have enough space if you write on every line, avoid wide margins, and keep your handwriting to a reasonable size. Remember that people who are not familiar with your handwriting will read what you write. Try to write or print so that what you are writing is legible to those readers.

**Important Reminders:**

- **A pencil is required for the essay.** An essay written in ink will receive a score of zero.
- **Do not write your essay in your test book.** You will receive credit only for what you write on your answer sheet.
- **An off-topic essay will receive a score of zero.**

You have twenty-five minutes to write an essay on the topic assigned below.

Think carefully about the issue presented in the following excerpt and the assignment below.

The people we call heroes do not usually start out as unusual. Often they are ordinary people subject to ordinary human weaknesses—fear, doubt, and self-interest. In fact, they live ordinary lives until they distinguish themselves by having to deal with an injustice or a difficult situation. Only then, when they must respond in thought and in action to an extraordinary challenge, do people begin to know their strengths and weaknesses.

**Assignment:** Do people learn who they are only when they are forced into action? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

BEGIN WRITING YOUR ESSAY ON PAGE 2 OF THE ANSWER SHEET.

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.

**SECTION 2**

Time — 25 minutes

24 Questions

**Turn to Section 2 (page 4) of your answer sheet to answer the questions in this section.****Directions:** For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

**Example:**

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful  
 (B) end . . divisive  
 (C) overcome . . unattractive  
 (D) extend . . satisfactory  
 (E) resolve . . acceptable

(A) (B) (C) (D) ●

- Responding to criticism that the script was rambling and -----, the new screenwriter revised the dialogue for greater succinctness and -----.  
 (A) engaging . . simplicity  
 (B) subjective . . ambiguity  
 (C) muddled . . clarity  
 (D) terse . . emptiness  
 (E) difficult . . abstraction
- During the 1990's, Shanghai benefited from an architectural -----, the result of a dramatic increase in innovative and artistic building.  
 (A) intransigence (B) plenitude (C) desecration  
 (D) stagnation (E) renaissance
- Many subatomic nuclear particles are ----- and nearly -----: they are hard to track as well as to detect.  
 (A) unstable . . explosive  
 (B) elusive . . imperceptible  
 (C) minute . . immobile  
 (D) charged . . reactive  
 (E) tenuous . . indivisible
- The crafty child tricked his innocent brother, a particularly ----- and trusting boy, into committing a mischievous prank.  
 (A) guileless (B) intrusive (C) astute  
 (D) opportunistic (E) circumspect
- Ellen Ochoa's ----- with the apparatus in the space shuttle Discovery was apparent when she adroitly manipulated the shuttle's robot arm.  
 (A) compromise (B) humility (C) machinations  
 (D) synergy (E) deftness



The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passages and in any introductory material that may be provided.

Questions 6-9 are based on the following passages.

**Passage 1**

Line When I entered journalism school in the 1920's, I  
found out that perennial and fundamental laws governing  
the art of good writing had been discovered. Experts  
had stubbornly and rigorously analyzed readers' modest  
5 capacity to dedicate their attention to the printed page  
and had established once and for all, apparently with the  
mathematical precision of astronomers, the order of  
readers' natural preferences. They found that effective  
prose was composed of a limited number of very simple  
10 and common words grouped in short, crisp sentences.  
When designed rigorously, such prose could penetrate the  
opaque barrier of millions of readers' indifference, apathy,  
inattention, and obtuseness.

**Passage 2**

15 Beginning writers are often taught that effective prose  
is crisp and concise and that most readers have no patience  
with densely complex sentences and obscure vocabulary.  
While clarity and succinctness are certainly worthy goals,  
I sometimes worry that our assumption that the reading  
public can comprehend *only* such writing might be selling  
20 them short. Assuming that readers are merely able to digest  
simple words, and that they have no interest in puzzling  
through more challenging prose, turns that theory into a  
self-fulfilling prophecy. It's our responsibility as writers  
to offer the public something beyond workmanlike writing:  
25 if we don't, readers will never appreciate writing as an art  
rather than as a mechanical craft.

6. Both passages address which of the following topics?
- (A) Why people choose writing as a career  
(B) The kind of writing that readers can understand  
(C) How readers convey their preferences to writers  
(D) The difference between beginning writers and experts  
(E) Why long sentences are easier to read than short ones
7. Which statement in Passage 2 most directly contradicts the assertion in Passage 1, lines 8-10 ("They found . . . sentences") ?
- (A) "Beginning writers . . . concise" (lines 14-15)  
(B) "most readers . . . vocabulary" (lines 15-16)  
(C) "clarity and . . . goals" (line 17)  
(D) "they have . . . prose" (lines 21-22)  
(E) "It's our . . . writing" (lines 23-24)
8. The author of Passage 2 would most likely respond to the view of readers expressed in the last sentence of Passage 1 (lines 11-13) with
- (A) concern  
(B) perplexity  
(C) disdain  
(D) humor  
(E) appreciation
9. In comparison to Passage 2, the tone of Passage 1 is more
- (A) earnest  
(B) inspirational  
(C) complacent  
(D) defensive  
(E) sarcastic

**Questions 10-15 are based on the following passage.**

The following passage is from a 1994 collection of essays about animals, written by a poet, philosopher, and animal trainer.

The question that comes first to my mind is this: What would it mean to say that an animal has the right to the pursuit of happiness? How would that come about, and in relationship to whom?

Line

5 In speaking of “animal happiness,” we often tend to mean something like “creature comforts.” The emblems of this are the golden retriever rolling in the grass, the horse with his nose deep in the oats, kitty by the fire. Creature comforts are important to animals: “Grub first, then ethics”  
10 is a motto that would describe many a wise Labrador retriever, and I have a bull terrier named Annie whose continual quest for the perfect pillow inspires her to awesome feats. But there is something more to animals, something more to my Annie, a capacity for satisfactions  
15 that come from work in the full sense—something approximately like what leads some people to insist that they need a career (though my own temperament is such that I think of a good woodcarver or a dancer or a poet sooner than I think of a business executive when I  
20 contemplate the kind of happiness enjoyed by an accomplished dressage<sup>1</sup> horse). This happiness, like the artist’s, must come from something within the animal, something trainers call talent, and so cannot be imposed on the animal. But at the same time it does not arise in a  
25 vacuum; if it had not been a fairly ordinary thing in one part of the world at one point to teach young children to play the harpsichord, it is doubtful that Mozart’s music would exist. There are animal versions, if not equivalents, of Mozart, and they cannot make their spontaneous  
30 passions into sustained happiness without education, any more than Mozart could have.

Aristotle identified happiness with ethics and with work, unlike Thomas Jefferson, who defined happiness as  
35 “Indolence of Body; Tranquility of Mind,” and thus what I call creature comforts. Aristotle also excluded as unethical anything that animals and artists do, for reasons that look wholly benighted to me. Nonetheless, his central insights are more helpful than anything else I know in beginning to understand why some horses and dogs can only be  
40 described as competent, good at what they do, and therefore happy. Not happy because leading lives of pleasure, but rather happy because leading lives in which the sensation of getting it right, the “click,” as of the pleasure that comes from solving a puzzle or surmounting something,  
45 is a governing principle.

10. The author presents examples in lines 7-8 in order to
- (A) illustrate the variety of activities in which animals engage
  - (B) suggest that appearances of happiness are deceptive
  - (C) evoke images of contentment
  - (D) support an apparently implausible argument
  - (E) arouse nostalgic longings
11. The motto in line 9 indicates that animals
- (A) are much more intelligent than many people believe
  - (B) have been forced to develop keen survival skills
  - (C) desire consistency in their daily lives
  - (D) enjoy close relationships with human beings
  - (E) are concerned primarily with immediate physical gratification
12. Which of the following statements is most consistent with the author’s discussion of “temperament” in lines 17-21?
- (A) The author believes a poet can be successful in business.
  - (B) The author considers artistic pursuits to be the most personally fulfilling of all endeavors.
  - (C) The author suspects that a busy life can have its own rewards.
  - (D) The author believes that few people are ever satisfied with the jobs they have chosen.
  - (E) The author considers subjectivity and self-knowledge to be critical to human gratification.
13. The author’s discussion of Mozart in lines 25-28 primarily emphasizes the
- (A) role of social circumstances in the emergence of a musical genius
  - (B) fact that young children are sometimes pushed to excel
  - (C) observation that genius was more common in the past than it is today
  - (D) belief that the harpsichord was the ideal musical instrument for Mozart’s early talent
  - (E) pleasure that artists derive from achievement

<sup>1</sup>Dressage is a complex series of movements signaled to a horse by its rider.



14. In line 30, “passions” most nearly means

- (A) love affairs
- (B) violent outbursts
- (C) enthusiasms
- (D) prejudices
- (E) sufferings

15. Which situation most accurately illustrates the author’s definition of a happy animal?

- (A) A bird finding its one lifetime mate
- (B) A dog herding sheep into a pen
- (C) A horse being carefully groomed for a show
- (D) A monkey escaping from a city zoo
- (E) A cat caring devotedly for her kittens

**Questions 16-24 are based on the following passage.**

*This passage was written in 1996 after the discovery of a meteorite that appeared to contain fossil evidence of microscopic life on Mars.*

The rock that sprang to Martian “life” late last summer did not shock me by offering up apparent fossils of an extinct alien form of life. I had long believed that the universe teems with life elsewhere, and that our failure to find it simply results from a lack of exploration. What did amaze me about the potato-size rock that fell from Mars was that it had traveled millions of miles across space to land here, blasted from world to world by a planetary collision of the sort that purportedly killed off our dinosaurs, and had lain waiting for millennia upon an Antarctic ice field, until an observant young woman traveling in an expedition party picked it up, because she figured that it had come from another world. How could she know such a thing?

The composition of ALH 84001, as the much scrutinized rock is designated, closely matches the makeup of Martian matter that was analyzed on site in 1976 by miniature chemistry laboratories aboard two Viking Mars landers. As a result of this positive identification, no astronomer seriously doubts the meteorite’s Martian origin. Researchers think they have pinpointed its former resting place to just two possible sites—a region called Sinus Sabaeus, fourteen degrees south of the Martian equator, or a crater east of the Hesperia Planitia region. The bold precision of this assessment is for me the most stunning surprise dealt by the rock from Mars—even more mind-boggling than the suggestive traces of something that might once have lived and died in its microscopic fissures.

I cannot resist comparing this new intimacy with our solar system to the shoebox diorama of the planets I designed for my grade-school science fair. I used marbles, jack balls, and Ping-Pong balls, all hanging on strings and painted different colors, all inside a box representing our solar system. This crude assortment of materials allowed a reasonable representation of what was known 40 years ago about the nine planets: Mars was red and had two moons; Jupiter dwarfed the other planets (I should have used a basketball but it wouldn’t fit in the box); Saturn had rings. If my school-age daughter were to attempt such a construction today, she’d need handfuls of jelly beans and gum balls to model the newly discovered satellites of the giant planets. She’d want rings around Jupiter, Uranus, Neptune, too, not to mention a moon for Pluto.

Similarly, our solar system, once considered unique, now stands as merely the first known example of a planetary system in our galaxy. Since October of 1995, astronomers at ground-based observatories in Europe and the United States have announced that they’ve found evidence of at least seven alien planets orbiting other stars.

As yet, not one of these large planets—some of which are many times the mass of Jupiter—has actually been seen through a telescope; we know about them indirectly through the gravitational effects they exert on their parent stars. Yet, even though we have no picture of what they look like, enough information has been deduced about their atmospheric conditions to grant the nickname Goldilocks to a planet attending the star 70 Virginis, an appellation suggesting that the cloud-top temperature is “just right,” as the storybook Goldilocks would say, for the presence of liquid water. Liquid water, not known to exist anywhere in our solar system now except on Earth, is thought crucial to biological life; thus, only a short leap of faith is needed to carry hopeful scientists from the presence of water to the existence of extraterrestrial life. To raise the specter of the Mars rock once again, the primitive life-forms that pressed their memory inside it likewise suggest an era when dry-as-dust Mars was a wet world, where rivers flowed.

16. In lines 5-12, the author suggests that the expeditionist’s discovery of the meteorite was surprising primarily because it
- (A) defied scientists’ doubts that such an object could reach Earth
  - (B) occurred after her party had given up any hope of success
  - (C) resulted from a seemingly unlikely sequence of events
  - (D) provided evidence to contradict a long-standing scientific theory
  - (E) led to an unprecedented degree of scrutiny
17. In line 15, “designated” most nearly means
- (A) drawn
  - (B) called
  - (C) stipulated
  - (D) selected
  - (E) allocated
18. The author considers the researchers’ conclusion “bold” (line 24) primarily because it
- (A) daringly offers two conflicting answers to a single question
  - (B) firmly supports a young geologist’s tentative theory
  - (C) confidently uses a small piece of evidence to build an exact hypothesis
  - (D) courageously defies a conventional interpretation of Antarctic evidence
  - (E) defiantly espouses an unpopular theory about comets in our solar system





19. The author uses the phrase “this new intimacy” (line 28) to refer to the
- (A) hands-on quality of the learning experience represented by the shoebox diorama
  - (B) understanding that nonspecialists now have about meteorological phenomena
  - (C) general acceptance of the theory that biological life once existed on Mars
  - (D) increased knowledge that scientists have about our solar system
  - (E) way that events on one planet affect those on another
20. In line 33, “crude” most nearly means
- (A) natural and unaltered
  - (B) rough and inexpert
  - (C) obvious
  - (D) vulgar
  - (E) nonspecific
21. In line 42, the author refers to Pluto’s moon most likely in order to
- (A) illustrate a feature of our solar system discovered since the author’s childhood
  - (B) cite an object too small in scale to have been included in the author’s diorama
  - (C) draw a parallel between it and our own moon
  - (D) contrast the scientific curiosity of today’s children with that of children years ago
  - (E) emphasize the need for a greater commitment to space exploration
22. The reasoning process presented in lines 49-53 (“As . . . stars”) is best described as
- (A) inference based on an untested theory
  - (B) extrapolation from similar situations
  - (C) analysis of a single case by multiple observers
  - (D) hypothesis confirmed by direct observation
  - (E) comparison of theory with physical evidence
23. In lines 53-59 the author refers to the Goldilocks fairy tale (“Yet . . . water”) in order to make which point about a particular planet?
- (A) The planet’s environment may be conducive to a result some scientists are eager to find.
  - (B) The planet’s atmosphere was once thought to be too cold to support biological life.
  - (C) The simple methods astronomers used to discover the features of this planet resemble the explorations of curious children.
  - (D) Scientists’ wishful speculations about the existence of this planet deserve little more credence than a fairy tale.
  - (E) Only after much trial and error did astronomers determine the precise location of this planet.
24. Which of the following, if true, would the “hopeful scientists” (line 62) most likely interpret as evidence of the potential for life on Mars?
- (A) Mars was affected by the same planetary collision that caused the extinction of dinosaurs.
  - (B) Mars had a very mild atmospheric temperature millions of years ago.
  - (C) Mars had a wet environment at one time in the past.
  - (D) The rock that fell from Mars resembled rocks found on the Antarctic ice field.
  - (E) The rock that fell from Mars had very few microscopic fissures.

**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.**

## SECTION 3

Time — 25 minutes

18 Questions

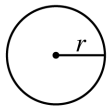
Turn to Section 3 (page 4) of your answer sheet to answer the questions in this section.

**Directions:** This section contains two types of questions. You have 25 minutes to complete both types. For questions 1-8, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

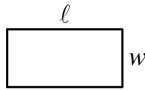
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
- Unless otherwise specified, the domain of any function  $f$  is assumed to be the set of all real numbers  $x$  for which  $f(x)$  is a real number.

Reference Information

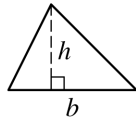


$$A = \pi r^2$$

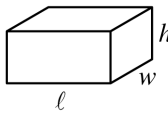
$$C = 2\pi r$$



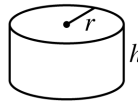
$$A = \ell w$$



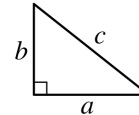
$$A = \frac{1}{2}bh$$



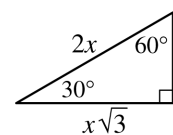
$$V = \ell wh$$



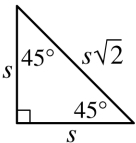
$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



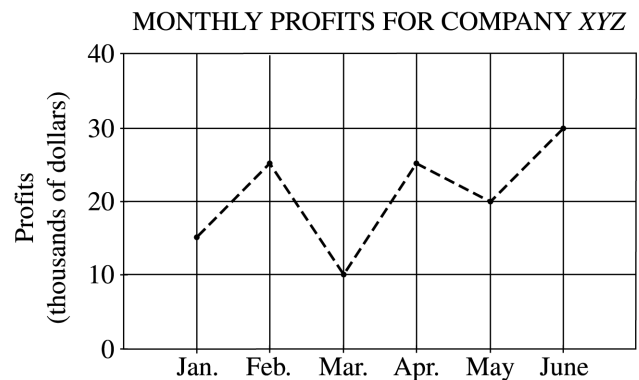
Special Right Triangles



The number of degrees of arc in a circle is 360.

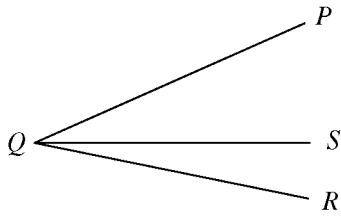
The sum of the measures in degrees of the angles of a triangle is 180.

- Each month, a telephone service charges a base rate of \$10.00 and an additional \$0.08 per call for the first 40 calls and \$0.04 for every call after that. How much does the telephone service charge for a month in which 50 calls are made?
  - \$12.20
  - \$12.80
  - \$13.60
  - \$14.40
  - \$17.60



- According to the chart above, Company XYZ experienced its largest increase in monthly profits between which two consecutive months?
  - January and February
  - February and March
  - March and April
  - April and May
  - May and June

GO ON TO THE NEXT PAGE



Note: Figure not drawn to scale.

3. In the figure above, the measure of  $\angle SQR$  is  $\frac{2}{5}$  the measure of  $\angle PQR$ . If the measure of  $\angle PQR$  is  $\frac{2}{3}$  the measure of a right angle, what is the measure of  $\angle SQR$  ?
- (A)  $24^\circ$   
 (B)  $36^\circ$   
 (C)  $48^\circ$   
 (D)  $60^\circ$   
 (E)  $96^\circ$

<i>E</i>			0		3
<i>F</i>			0		2
<i>G</i>			0		0
<i>H</i>			0		1
	1	3	0	2	

4. Each square in the grid above is to be filled with either 1 or 0. Each number to the right of the grid is the sum of the numbers in the row to its left, and each number below the grid is the sum of the numbers in the column above it. For example, there is a 0 below the third column because the sum of the numbers in that column is 0. When the 0's and 1's are all entered correctly into the grid, what will row *F* be?

(A) *F*

1	1	0	0
---	---	---	---

(B) *F*

1	0	1	0
---	---	---	---

(C) *F*

0	1	1	0
---	---	---	---

(D) *F*

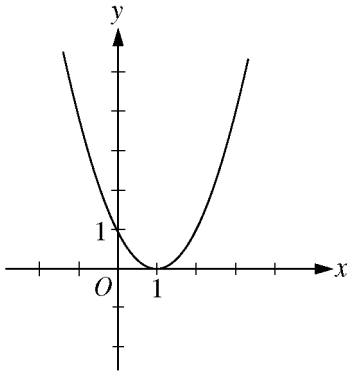
1	0	0	1
---	---	---	---

(E) *F*

0	1	0	1
---	---	---	---

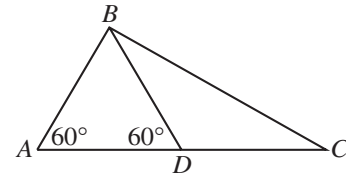
5. If  $(m - 1)(1 - k) = 0$ , which of the following can be true?

- I.  $m = 1$
  - II.  $k = 1$
  - III.  $m = k$
- (A) None  
 (B) I only  
 (C) II only  
 (D) I and II only  
 (E) I, II, and III



6. Which of the following could be the equation of the graph of function  $g$ , shown above?

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



7. In  $\triangle ABC$  above,  $AB = 3$ , and  $D$  is the midpoint of  $\overline{AC}$ . What is the length of  $\overline{BC}$ ?

- (A)  $3\sqrt{3}$  (approximately 5.20)  
 (B)  $4\sqrt{2}$  (approximately 5.66)  
 (C)  $4\sqrt{3}$  (approximately 6.93)  
 (D)  $6\sqrt{2}$  (approximately 8.49)  
 (E)  $5\sqrt{3}$  (approximately 8.66)

8. If  $q$  and  $r$  are positive numbers, what percent of  $(q + 1)$  is  $r$ ?

- (A)  $\frac{1}{100r(q + 1)}\%$   
 (B)  $\frac{q + 1}{100r}\%$   
 (C)  $\frac{100(q + 1)}{r}\%$   
 (D)  $\left(\frac{100r}{q} + 1\right)\%$   
 (E)  $\frac{100r}{q + 1}\%$

**Directions:** For Student-Produced Response questions 9-18, use the grids at the bottom of the answer sheet page on which you have answered questions 1-8.

Each of the remaining 10 questions requires you to solve the problem and enter your answer by marking the circles in the special grid, as shown in the examples below. You may use any available space for scratchwork.

Write answer in boxes.

Grid in result.

Answer:  $\frac{7}{12}$

7	/	1	2
•	•	•	•
0	0	0	0
1	1	•	1
2	2	2	•
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
•	7	7	7
8	8	8	8
9	9	9	9

Fraction line

Answer: 2.5

2	.	5
•	•	•
0	0	0
1	1	1
2	•	2
3	3	3
4	4	4
5	5	•
6	6	6
7	7	7
8	8	8
9	9	9

Decimal point

Answer: 201  
Either position is correct.

2	0	1
•	•	•
0	•	0
1	1	•
2	•	2
3	3	3
4	4	4

2	0	1
•	•	•
0	•	0
1	1	•
2	•	2
3	3	3
4	4	4

**Note:** You may start your answers in any column, space permitting. Columns not needed should be left blank.

- Mark no more than one circle in any column.
- Because the answer sheet will be machine-scored, **you will receive credit only if the circles are filled in correctly.**
- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- **Mixed numbers** such as  $3\frac{1}{2}$  must be gridded as 3.5 or 7/2. (If 

3		1		/		2
•	•	•	•	•	•	•

 is gridded, it will be interpreted as  $\frac{31}{2}$ , not  $3\frac{1}{2}$ .)

- **Decimal Answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid. For example, if you obtain an answer such as 0.6666..., you should record your result as .666 or .667. **A less accurate value such as .66 or .67 will be scored as incorrect.**

Acceptable ways to grid  $\frac{2}{3}$  are:

2	/	3
•	•	•
0	0	0
1	1	1
2	•	2
3	3	•
4	4	4
5	5	5
6	6	6

.	6	6	6
•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	•	•	•

.	6	6	7
•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	•	•	•

9. How many  $\frac{1}{4}$ -pound sticks of butter together weigh as much as 25 pounds of butter?

10. If  $\frac{(5 + 2)m + 3}{4} = 6$ , what is the value of  $m$ ?

11. In isosceles triangle  $ABC$ , the measure of angle  $A$  is  $80^\circ$ . If another angle of the triangle measures  $x^\circ$ , where  $x \neq 80$ , what is one possible value of  $x$ ?

12. If  $r$  is directly proportional to  $s$  and if  $s = \frac{2}{3}$  when  $r = \frac{4}{5}$ , what is the value of  $r$  when  $s = \frac{4}{9}$ ?

WHERE DO TWELFTH GRADERS  
USE COMPUTERS?

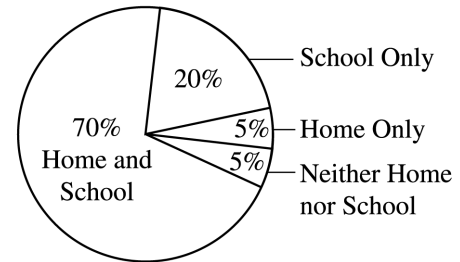


Figure 1

Twelfth Graders

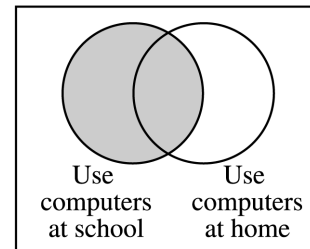


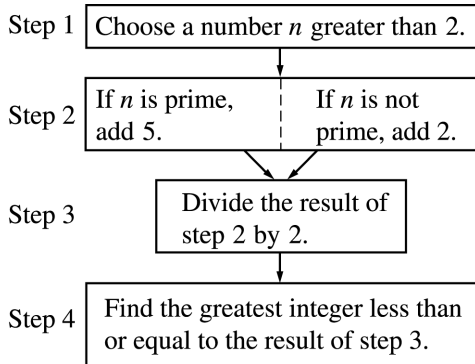
Figure 2

Note: Figure 2 not drawn to scale.

13. The Lyndhurst High School twelfth graders are represented in the circle graph in Figure 1. Figure 2 is another way to illustrate the use of computers by these twelfth graders. If the same 200 twelfth graders are represented in both figures, what is the total number of twelfth graders represented by the shaded circle in Figure 2?

$A$	$B$
$D$	$C$

14. In the figure above, the lengths and widths of rectangles  $A$ ,  $B$ ,  $C$ , and  $D$  are whole numbers. The areas of rectangles  $A$ ,  $B$ , and  $C$  are 35, 45, and 36, respectively. What is the area of the entire figure?



15. In the chart above, if the number  $n$  chosen in step 1 is 39, what number will be the result of step 4 ?

16. In an art class, there were just enough staplers, rulers and glue bottles so that every 2 students had to share a stapler, every 3 students had to share a ruler, and every 4 students had to share a glue bottle. If the sum of the number of staplers, rulers, and glue bottles used by the class was 65, how many students were in the class?

17. If  $a$  and  $b$  are integers such that  $a + b < 1000$  and  $\frac{a}{b} = 0.625$ , what is the greatest possible value of  $b$ ?

18. How many positive integers less than 1,000 are multiples of 5 and are equal to 3 times an even integer?

**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.

**SECTION 4**

Time — 25 minutes

35 Questions

**Turn to Section 4 (page 5) of your answer sheet to answer the questions in this section.****Directions:** For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Laura Ingalls Wilder published her first book and she was sixty-five years old then.

- (A) and she was sixty-five years old then
- (B) when she was sixty-five
- (C) at age sixty-five years old
- (D) upon the reaching of sixty-five years
- (E) at the time when she was sixty-five

(A)  (B)  (C)  (D)  (E)

1. Industrial growth that was being stifled by the country's dictatorship, but now they are developing their full economic potential.
  - (A) Industrial growth that was being stifled by the country's dictatorship, but now they are developing their full economic potential.
  - (B) The dictatorship had stifled industrial growth, but the country is now developing their full economic potential.
  - (C) Industrial growth was stifled by the country's dictatorship, and so now they are developing their full economic potential.
  - (D) Though the dictatorship had stifled industrial growth, the country is now developing its full economic potential.
  - (E) Now developing their full economic potential, the country's dictatorship had stifled industrial growth.

2. Looking down through the boat's glass bottom, a school of yellow fish was seen swimming along with the turtles.
  - (A) a school of yellow fish was seen
  - (B) a school of yellow fish were seen
  - (C) we saw a school of yellow fish
  - (D) we seen a school of yellow fish
  - (E) yellow fish in schools are seen
3. A radio system consists of a means of transforming sounds into electromagnetic waves and of transmitting those waves through space; after this those waves must be transformed back into sounds.
  - (A) waves and of transmitting those waves through space; after this those waves must be transformed
  - (B) waves, transmitting the waves through space, and transforming them
  - (C) waves, of transmitting them through space, and then the translation of them
  - (D) waves and of transmitting them through space; after this the waves have to be translated
  - (E) waves, of the transmitting of those waves through space and of translating same
4. It underlies the poem that human beings are free to choose and may be blamed for their choices.
  - (A) It underlies the poem
  - (B) In the poem, they assumed
  - (C) In the poem, a basic assumption which is made is
  - (D) It is an assumption that underlies the poem
  - (E) The basic assumption of the poem is





5. The modern city may not have new citadels or cathedrals, but there is a great many new office buildings and freeways.
- (A) but there is a great many new office buildings and freeways  
 (B) but it does have a great many new office buildings and freeways  
 (C) but a great many new office buildings and freeways  
 (D) although many new office buildings and freeways are there  
 (E) although a great many new office buildings and freeways are seen
6. The remains of the Apatosaurus provide evidence of there being giants existing on Earth during the late Jurassic period.
- (A) of there being giants existing  
 (B) of there having been giants existing  
 (C) of there existing giants  
 (D) that giants have existed  
 (E) that giants existed
7. Farming in that area of the country is inefficient because of their farm machinery shortage and that they lack the knowledge to operate it.
- (A) because of their farm machinery shortage and that they lack the  
 (B) in that they have a shortage of farm machinery and a lack of  
 (C) because of the shortage of farm machinery and their lacking the  
 (D) in that there is both a shortage of farm machinery as well as a lack of  
 (E) because of the shortage of farm machinery and the lack of
8. The most popular painting in the exhibit of works by local artists was done by a seventy-year-old woman, who painted an exquisite self-portrait of herself.
- (A) was done by a seventy-year-old woman, who painted an exquisite self-portrait of herself  
 (B) was an exquisite self-portrait of a seventy-year-old woman, who painted herself  
 (C) was an exquisite self-portrait of a seventy-year-old woman  
 (D) was done by a seventy-year-old woman, and it is her own exquisite self-portrait  
 (E) was by a seventy-year-old woman, being an exquisite self-portrait
9. The tiles are sorted not only by their surface appearance but also according to their hardness and their capacity of conducting heat.
- (A) according to their hardness and their capacity of conducting heat  
 (B) according to their hardness and of their heat-conducting capacity  
 (C) by their hardness and if they have the capacity for heat conduction  
 (D) by their hardness and their capacity for conducting heat  
 (E) by their hardness and capacity in heat conduction
10. Radio frequencies have to be allocated to users so that one transmission will not interfere with another.
- (A) one transmission will not interfere with another  
 (B) each transmission cannot interfere with another's  
 (C) transmitting them will not interfere with one another  
 (D) no transmission is interfered with by another  
 (E) no one transmission would have interference with the other
11. The Pony Express was an ingenious system for carrying mail; it was in existence only briefly, however, before the telegraph system made it obsolete.
- (A) mail; it was in existence only briefly, however,  
 (B) mail, for it was in existence only briefly, however,  
 (C) mail; however, existing only briefly  
 (D) mail, having existed only briefly  
 (E) mail, but was existing only briefly



The following sentences test your ability to recognize grammar and usage errors. Each sentence contains either a single error or no error at all. No sentence contains more than one error. The error, if there is one, is underlined and lettered. If the sentence contains an error, select the one underlined part that must be changed to make the sentence correct. If the sentence is correct, select choice E. In choosing answers, follow the requirements of standard written English.

EXAMPLE:

The other delegates and him immediately  
 A B C  
 accepted the resolution drafted by the  
 D  
 neutral states. No error  
 E

(A) ● (C) (D) (E)

12. At first we panicked when we discovered we  
 had missed our flight, but then we took a bus to  
 A B  
 another airport, where there are several planes  
 C  
 leaving for Denver that evening. No error  
 D E
13. Only after the floodwaters had rose two feet was the  
 A B  
 mayor willing to order the evacuation of some  
 C D  
 homes. No error  
 E
14. Confucianism is more a code of ethics than like a  
 A  
 religion; it presents no deities but fosters instead a  
 B C  
 respect for one's ancestors and for an orderly society.  
 D  
No error  
 E
15. Just as parents vary in their readiness to have their  
 A  
 children leave home for college, young people vary  
 B  
 in his or her readiness to leave. No error  
 C D E
16. Local party organizations have discovered that voter  
 turnout is diminished considerably whenever the  
 A B  
 media projected election results early in the day.  
 C D  
No error  
 E
17. Absent from the speech were any mention of the  
 A B  
 students and laboratory technicians upon whose  
 C  
 contributions the chemist had depended heavily.  
 D  
No error  
 E
18. Paul's letter to myself about the missing money  
 A  
 was not intended to be read by any other member  
 B C D  
 of the organization. No error  
 E
19. After the prince characterized modern architecture  
 as ugly, he has been severely criticized for having  
 A B C  
 been so outspoken in public. No error  
 D E



20. No matter how cautious snowmobiles are driven,  
A B  
they are capable of damaging the land over which  
C D  
they travel. No error  
E
21. The black squirrels drew a crowd of students, for it  
A B C  
had never been seen on the campus before. No error  
D E
22. A majority of the students who attended the job fair  
A B  
expressed interest in becoming a doctor or lawyer.  
C D  
No error  
E
23. Never before had a group of artists been so isolated  
A B  
from society and from official patronage as was the  
C D  
so-called Impressionists. No error  
E
24. The flowers that Jane and Jonathan ordered to be  
A  
sent to their mother were less fresh and much more  
B C  
expensive than Carr's Flower Shop. No error  
D E
25. A possible first step in developing a nonsexist  
A  
vocabulary with which to analyze the works of the  
B C  
nineteenth-century writer Elizabeth Gaskell would be  
to stop referring to her as "Mrs. Gaskell." No error  
D E
26. After 140 years under the sea, the remains of the  
A B  
Monitor, an ironclad warship that was sunk during the  
Civil War, is being gradually brought to the surface.  
C D  
No error  
E
27. I have gone to only one football game after  
A B C  
I graduated from high school. No error  
D E
28. The radio station received the most number of calls  
A  
from listeners on the evening it aired a discussion of  
B C  
the music of Aretha Franklin. No error  
D E
29. When the village elders present recommendations,  
A  
there is hardly ever any opposition against their  
B C D  
proposals. No error  
E



**Directions:** The following passage is an early draft of an essay. Some parts of the passage need to be rewritten.

Read the passage and select the best answers for the questions that follow. Some questions are about particular sentences or parts of sentences and ask you to improve sentence structure or word choice. Other questions ask you to consider organization and development. In choosing answers, follow the requirements of standard written English.

**Questions 30-35 are based on the following.**

(1) People today have placed emphasis on the kinds of work that others do, it is wrong. (2) Suppose a woman says she is a doctor. (3) Immediately everyone assumes that she is a wonderful person, as if doctors were incapable of doing wrong. (4) However, if you say you're a carpenter or mechanic, some people think that you're not as smart as a doctor or a lawyer. (5) Can't someone just want to do this because he or she loves the work ?

(6) Also, who decided that the person who does your taxes is more important than the person who makes sure that your house is warm or that your car runs ? (7) I know firsthand how frustrating it can be. (8) They think of you only in terms of your job. (9) I used to clean houses in the summer because the money was good; but yet all the people whose houses I cleaned seemed to assume that because I was vacuuming their carpets I did not deserve their respect. (10) One woman came into the bathroom while I was scrubbing the tub. (11) She kept asking me if I had any questions. (12) Did she want me to ask whether to scrub the tub counter-clockwise instead of clockwise ? (13) Her attitude made me angry! (14) Once I read that the jobs people consider important have changed. (15) Carpenters used to be much more admired than doctors. (16) My point is, then, that who I want to be is much more important than what I want to be!

30. Of the following, which is the best way to phrase sentence 1 (reproduced below) ?

*People today have placed emphasis on the kinds of work that others do, it is wrong.*

- (A) (As it is now)
- (B) People today place too much emphasis on the kinds of work that others do.
- (C) What kinds of work others do is being placed too much emphasis on by people today.
- (D) The wrong kind of emphasis had been placed on the kinds of work others do today.
- (E) The wrong emphasis is being placed today on people and what kind of work they do.

31. In context, which of the following is the best way to revise and combine the underlined portions of sentences 2 and 3 (reproduced below) ?

*Suppose a woman says she is a doctor. Immediately everyone assumes that she is a wonderful person, as if doctors were incapable of doing wrong.*

- (A) Suppose a woman says she is a doctor, but immediately
- (B) If a woman says she is a doctor, for instance, immediately
- (C) When a woman says she is a doctor, however, immediately
- (D) Immediately, if they say, for example, she is a doctor,
- (E) Therefore, a woman is maybe saying she is a doctor; immediately

32. In context, the phrase *do this* in sentence 5 would best be replaced by

- (A) hold this particular opinion
- (B) resist temptation
- (C) ask someone for assistance
- (D) become a carpenter or a mechanic
- (E) aspire to learn medicine

33. Which of the following is the best way to revise and combine the underlined portions of sentences 7 and 8 (reproduced below) ?

*I know firsthand how frustrating it can be. They think of you only in terms of your job.*

- (A) be; they--people, that is--think of you
- (B) be when they are thinking of one
- (C) be how people think of you
- (D) be when people think of you
- (E) be; having people think of you



34. In context, the phrase *but yet* in sentence 9 would best be replaced by

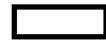
- (A) incidentally,
- (B) however,
- (C) in fact,
- (D) in addition,
- (E) for example,

35. The best place to begin a new paragraph in sentences 6-16 would be with sentence

- (A) 10
- (B) 11
- (C) 12
- (D) 14
- (E) 15

**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.

**SECTION 5**

Time — 25 minutes

24 Questions

**Turn to Section 5 (page 5) of your answer sheet to answer the questions in this section.****Directions:** For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

**Example:**

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful  
(B) end . . divisive  
(C) overcome . . unattractive  
(D) extend . . satisfactory  
(E) resolve . . acceptable

(A) (B) (C) (D) ●

- Much of our knowledge of dinosaurs comes from excavated bones, which, in ----- other clues such as fossilized tracks and eggs, help us to ----- the evolution of these creatures.
 

(A) convergence with . . supplant  
(B) divergence from . . decode  
(C) dependence on . . belie  
(D) opposition to . . amplify  
(E) conjunction with . . trace
- Vernal pools are among the most ----- of ponds: they form as a result of snowmelt and a high water table in winter, and then they ----- by late summer.
 

(A) transitory . . expand  
(B) anachronistic . . overflow  
(C) immutable . . drain  
(D) itinerant . . teem  
(E) ephemeral . . evaporate
- The ----- experiences of Madonna Swan, the 1983 North American Indian Woman of the Year, cannot be fully appreciated if they are ----- in a tidy summary.
 

(A) varied . . interposed  
(B) diverse . . condensed  
(C) profound . . magnified  
(D) transformative . . embellished  
(E) impressive . . immersed
- The representative was a traditionalist, reluctant to support any legislation inconsistent with the nation's most ----- principles.
 

(A) orthodox (B) impassioned (C) precarious  
(D) impressionable (E) indeterminate
- The author constructed a scenario in which playful, creative children are rewarded for their ----- and strict, dour adults are punished for their ----- .
 

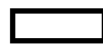
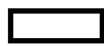
(A) spontaneity . . rigidity  
(B) digressions . . mirth  
(C) solemnity . . malice  
(D) inflexibility . . rigor  
(E) improvisations . . buoyancy
- Although usually warm and ----- in greeting friends, Lauren was too reserved ever to be truly ----- .
 

(A) joyous . . conventional  
(B) cordial . . effusive  
(C) restrained . . gracious  
(D) dismissive . . ebullient  
(E) genial . . antisocial
- Legal scholars argue that when "justice" is interpreted too broadly, the concept becomes -----, easily changed and controlled by outside forces.
 

(A) malleable (B) influential (C) coherent  
(D) felicitous (E) prosaic
- The instructor's voice was so ----- that most students preferred taking a test to listening to its grating sound.
 

(A) receptive (B) cajoling (C) melodious  
(D) muted (E) strident

**GO ON TO THE NEXT PAGE**



The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passages and in any introductory material that may be provided.

**Questions 9-10 are based on the following passage.**

The big doors of the hotel are padlocked. So far nobody has smashed their glass panels. Nobody could stand to do it because the panels mirror your own face as well as the view behind your back: acres of chive grass edging the sparkly beach, a movie-screen sky, and an ocean that wants you more than anything. No matter the outside loneliness, if you look inside, the hotel seems to promise you ecstasy and the company of all your best friends. And music. The shift of a shutter hinge sounds like the cough of a trumpet; piano keys waver a quarter note above the wind so you might miss the hurt jamming those halls and closed-up rooms.

9. The passage is characterized by all of the following EXCEPT

- (A) visual imagery
- (B) auditory descriptions
- (C) contrast
- (D) an appeal to reason
- (E) hypothetical musings

10. Lines 10-12 (“piano keys . . . rooms”) convey a feeling of

- (A) lightheartedness
- (B) bewilderment
- (C) melancholy
- (D) nostalgia
- (E) detachment

**Questions 11-12 are based on the following passage.**

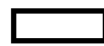
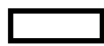
“Diffusion theory” is an umbrella idea encompassing various alternative theories of America’s discovery by explorers from other parts of the world. Columbus (and Leif Ericsson and Zheng He) had a lot more competitors than most people think: Prince Madoc of Wales, the Zeni brothers of Venice, Corte Real of Portugal, Poland’s Jan of Kolno. The fact is, crossing the Atlantic was probably not as big a deal as Columbus-centric historians thought. Diffusionists may not be able to pinpoint who beat Columbus to the punch, yet they’re sure someone did. They may well be right, but if you scrutinize any specific claim, it melts away. This is probably why diffusionists emphasize quantity over quality.

11. In line 1, “umbrella” is used to convey which of the following qualities?

- (A) Comprehensiveness
- (B) Impenetrability
- (C) Utility
- (D) Ordinarity
- (E) Foresight

12. The strategy employed by the diffusionists in making their claim is most evident in which assertion?

- (A) Since nothing can be proven with absolute certainty, we ultimately rely on faith.
- (B) Before the Wright brothers’ success, experts thought that craft that were heavier than air could not fly.
- (C) So many UFO sightings have been reported that at least one of them must be authentic.
- (D) Penicillin, like many other discoveries, was stumbled on by accident.
- (E) Although folk medicine was at first derided by the medical establishment, people still relied on it.

**Questions 13-24 are based on the following passages.**

*Is a person's gender an important influence on how he or she behaves with others? Contemporary sociologists and other scholars have argued this question fiercely. The following pair of passages presents two contrasting voices from that debate.*

**Passage 1**

The desire to affirm that women and men are completely equal has made some scholars reluctant to show ways in which they are different, because differences between two groups of people have so often been used to “justify” unequal treatment and opportunity. Much as I understand and am in sympathy with those who wish there were no differences between women and men—only reparable social injustice—my research on styles of conversation tells me that, at least in this area, it simply isn’t so. I believe that there *are* gender differences in ways of speaking, and we need to identify and understand them. Without such understanding, we are doomed to blame others or ourselves—or our own relationships—for the otherwise mystifying and damaging effects of our contrasting conversational styles.

It is clear to me that recognizing gender differences in conversational styles would free individuals from the burden of an inappropriate sense of being at fault for chronic disagreements. Many women and men feel dissatisfied with their close relationships—with spouses, siblings, parents—and become even more frustrated when they try to talk things out. Taking a *sociolinguistic* approach to such troubling encounters makes it possible to explain these dissatisfactions without accusing anyone of being wrong and without blaming—or discarding—the relationship.

The sociolinguistic approach I take in my work is based on my belief that many frictions arise because, here in the United States, boys and girls grow up in what are essentially different cultures, so that talk between women and men is actually cross-cultural communication. For little boys, talk is primarily a means of making statements of achievement through games like bragging contests. This may also be done by exhibiting knowledge or skill and by holding center stage through such verbal performance as storytelling, joking, or imparting information. Little girls appear to be eager to share and compare interests and ideas. Emphasis is placed on displaying similarities and matching experiences. For them, the language of conversation is primarily a language of rapport: a way of establishing connection and negotiating relationships. So this view of children’s behavior predicts that more women than men will be comfortable speaking one-on-one, to individuals. And even when addressing an audience, women may be more concerned than men with establishing rapport.

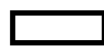
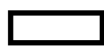
**Passage 2**

Gender stereotypes should concern us for several reasons. First, they may dictate what we notice and bias our perceptions in the direction of expectation. Some researchers attempt to elucidate gender differences in order to help women and men understand and respond to one another better. In the process, however, their work encourages people to notice and attend to differences rather than similarities, to perceive men and women in accordance with stereotypes that may not accurately depict their behavior or intentions. Second, gender stereotypes may not only describe behavior but also prescribe it, dictating how men and women “should” behave. People begin to act in ways that support other people’s gender-role expectations of them.

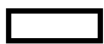
It is time to rethink our understanding of gender, to move away from the notion that men and women have two contrasting styles of interaction that were acquired in childhood. We need to move from a conceptualization of gender as an attribute or style of behavior to an understanding of gender as something people do in social interaction. As a noted scholar proposes, “None of us is feminine or is masculine or fails to be either of those. In particular contexts people do feminine, in others, they do masculine.” People display contradictory behaviors as they encounter different social norms and pressures.

Some researchers view male-female conversations as cross-cultural communication. The two-cultures approach postulates that difficulties in communication between men and women arise because of a clash of conversational styles. But this approach has a number of limitations. First, the coherence of male and female subcultures in childhood has been exaggerated. We arrive at a contrasting picture of the cultures of boys and girls only by singling out those children who fit common gender stereotypes and marginalizing others. We fail to notice the children who do not fit those stereotypes—for example, boys who excel at caring for younger siblings or girls who enjoy building things in shop class. Second, although children may choose same-sex playmates as preferred partners, they interact daily inside and outside school with the opposite sex. Children have countless experiences communicating with people of both sexes: they do not learn to communicate in gender-segregated worlds. They learn to display different styles of interaction in different contexts: they do not learn a single gender-related style. The same child may display dominance and give orders to a younger playmate but show deference and follow orders from an older friend.





13. The two passages differ most on which topic?
- (A) Whether boys and girls communicate in gender specific patterns
  - (B) Whether important social behavior is learned in childhood
  - (C) Whether adult conversational styles can be studied systematically
  - (D) Whether gender plays a role in determining a child's playtime activities
  - (E) Whether society concerns itself with the concept of gender roles
14. The primary purpose of Passage 1 is to
- (A) present a historical overview of a controversy
  - (B) acknowledge previous errors in thinking
  - (C) urge changes in organized activities provided for children
  - (D) assert the value of a particular approach to an issue
  - (E) downplay the significance of a recent discovery
15. Passage 1 makes which suggestion about the work of "some scholars" (line 2) ?
- (A) It will become widely accepted in the scientific community.
  - (B) It is well intentioned but misguided.
  - (C) It attempts to be objective but does not succeed.
  - (D) It puts forth a convincing theory.
  - (E) It could be used to excuse injustice in a society.
16. Passage 1 argues that "recognizing gender differences" (line 16) would most likely
- (A) cause people to exaggerate their similarities when communicating with one another
  - (B) lead to further dissatisfaction in conversations among friends and relatives
  - (C) promote the equal treatment of distinct social groups
  - (D) relieve individuals of much of the blame for problems in relationships
  - (E) affect the way that future research on gender is conducted
17. In lines 36-41 ("Little girls . . . relationships"), the author of Passage 1 assumes that for girls, a primary function of communication is to
- (A) foster a sense of intimacy between speaker and listener
  - (B) establish a set of conversational rules shared by speaker and listener
  - (C) convey information previously unknown by the listener
  - (D) promote nostalgic feelings about past friendships
  - (E) create an objective atmosphere for personal discussions
18. The author of Passage 2 would most likely challenge the claim made in lines 27-31 of Passage 1 ("The sociolinguistic . . . communication") by arguing that
- (A) children do not grow up in single-gender cultures
  - (B) children may become skilled at deceiving adults
  - (C) gender differences are impossible to assess scientifically
  - (D) there is less conflict between men and women than sociologists assume
  - (E) children's behaviors have changed dramatically in recent years
19. The sentence in lines 47-48 in Passage 2 ("First . . . expectation") primarily emphasizes which damaging effect of gender stereotypes?
- (A) They may offend the person being stereotyped.
  - (B) They may distort our observations of people we meet.
  - (C) They have been used to justify gender inequality.
  - (D) They commonly cause miscommunication between men and women.
  - (E) They reflect negatively on those who believe in them.



20. The assumptions underlying the research work described in lines 48-51 of Passage 2 are most similar to the assumptions held by the
- (A) “scholars” in line 2
  - (B) “women and men” in line 19
  - (C) “noted scholar” in line 66
  - (D) author of Passage 1
  - (E) author of Passage 2
21. The quotation in lines 66-69 (“None . . . masculine”) primarily serves to
- (A) introduce a personal experience
  - (B) provide a typical example
  - (C) elaborate on an idea
  - (D) signal a change in topic
  - (E) offer recent research data
22. Passage 2 suggests that some scholars construct “a contrasting picture of the cultures of boys and girls” (lines 77-78) by studying children whose
- (A) readiness to interact with strangers is apparent
  - (B) demand for approval from adults is particularly strong
  - (C) rebellion against authority results in creative behavior
  - (D) personalities are highly idiosyncratic
  - (E) actions correspond to a narrow preconception of behavior
23. The author of Passage 2 implies that the “boys” mentioned in line 81 and the “child” mentioned in line 90 resemble one another in that they
- (A) have not learned to imitate adult behaviors
  - (B) refuse to get along with their peers
  - (C) do not conform to traditional gender stereotypes
  - (D) openly mock adult expectations about their behavior
  - (E) communicate primarily with children of their own gender
24. Which of the following best characterizes the ideas about gender communication styles as they are presented in the two passages?
- (A) Passage 1 argues that styles are based on competition, while Passage 2 suggests that they are a form of cooperation.
  - (B) Passage 1 argues that styles are a burden, while Passage 2 implies that they can help facilitate relationships between men and women.
  - (C) Passage 1 claims that styles are semantic, while Passage 2 suggests that they are whimsical.
  - (D) Passage 1 suggests that styles are constant, while Passage 2 argues that they are fluid.
  - (E) Passage 1 states that styles are random, while Passage 2 indicates that their patterns become obvious upon closer scrutiny.

**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.**

## SECTION 7

Time — 25 minutes

20 Questions

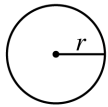
Turn to Section 7 (page 6) of your answer sheet to answer the questions in this section.

**Directions:** For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

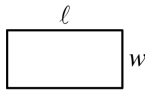
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
- Unless otherwise specified, the domain of any function  $f$  is assumed to be the set of all real numbers  $x$  for which  $f(x)$  is a real number.

Reference Information

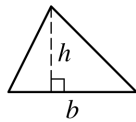


$$A = \pi r^2$$

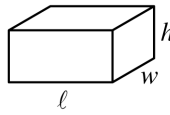
$$C = 2\pi r$$



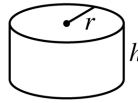
$$A = \ell w$$



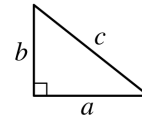
$$A = \frac{1}{2}bh$$



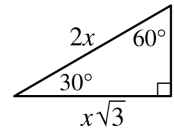
$$V = \ell wh$$



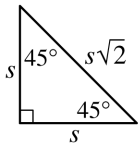
$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



Special Right Triangles

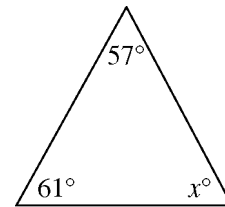


The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. If  $2x + 4x + 6x = -24$ , then  $x =$

- (A)  $-288$   
 (B)  $-2$   
 (C)  $-\frac{1}{2}$   
 (D)  $\frac{1}{2}$   
 (E)  $2$



2. In the triangle above,  $x =$

- (A) 59  
 (B) 60  
 (C) 61  
 (D) 62  
 (E) 63

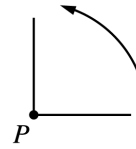
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3. For every 8,000 lawn mowers produced by a lawn mower factory, exactly 6 are defective. At this rate, how many lawn mowers were produced during a period in which exactly 15 lawn mowers were defective?

(A) 800  
 (B) 8,000  
 (C) 12,000  
 (D) 20,000  
 (E) 24,000

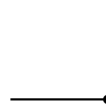
4. If  $7^{10} = 7 \times 7^n$ , what is the value of  $n$ ?

(A) 10  
 (B) 9  
 (C) 7  
 (D) 5  
 (E) 3

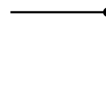


5. The figure above will be rotated  $90^\circ$  about point  $P$  in the direction indicated. Which of the following represents the rotated figure?

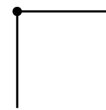
(A)



(B)



(C)



(D)

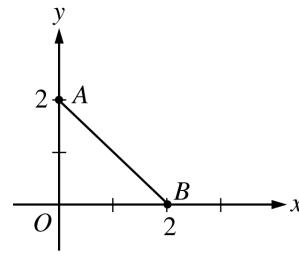


(E)



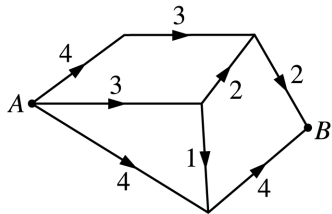
6. If 7.5 is  $x$  percent of 75, what is  $x$  percent of 10?

- (A) 10
- (B) 1
- (C) 0.75
- (D) 0.1
- (E) 0.075



8. In the figure above, line  $\ell$  (not shown) is perpendicular to  $\overline{AB}$  and bisects  $\overline{AB}$ . Which of the following points lies on line  $\ell$ ?

- (A) (0, 2)
- (B) (1, 3)
- (C) (3, 1)
- (D) (3, 3)
- (E) (3, 6)



Note: Figure not drawn to scale.

7. In the diagram of roads above, the numbers represent road distances in miles, and the arrows show the only directions in which travel is permitted on the roads. If the length of the longest route from  $A$  to  $B$  is  $\ell$  miles, and if the length of the shortest route from  $A$  to  $B$  is  $s$  miles, then  $\ell - s =$

- (A) 9
- (B) 8
- (C) 7
- (D) 3
- (E) 2

9. If  $2^y = 8$  and  $y = \frac{x}{2}$ , what is the value of  $x$ ?

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

10. What is the radius of a circle whose circumference is  $\pi$  ?

(A)  $\frac{1}{2}$   
(B) 1  
(C) 2  
(D)  $\pi$   
(E)  $2\pi$

11. How many of the prime factors of 30 are greater than 2 ?

(A) One  
(B) Two  
(C) Three  
(D) Four  
(E) Five

$a, 2a, b$

12. If the average (arithmetic mean) of the 3 numbers above is  $2a$ , what is  $b$  in terms of  $a$  ?

(A)  $a$   
(B)  $\frac{3}{2}a$   
(C)  $2a$   
(D)  $\frac{5}{2}a$   
(E)  $3a$

$y, 2y + 7, y + 6, \dots$

13. In the increasing sequence above, the first term is  $y$  and the difference between any two consecutive terms is 3. What is the value of the fourth term in the sequence?

(A)  $-4$   
(B) 2  
(C) 5  
(D) 13  
(E) 19

14. Let the function  $f$  be defined by  $f(x) = 2x - 1$ .

If  $\frac{1}{2}f(t) = 10$ , what is the value of  $t$  ?

(A)  $-9.5$   
(B)  $-3$   
(C) 3  
(D) 9.5  
(E) 10.5

15. In a windowless, cube-shaped storage room, the ceiling and 4 walls, including a door, are completely painted. The floor is not painted. If the painted area is equal to 80 square meters, what is the volume of the room, in cubic meters?

(A) 16  
(B) 20  
(C) 64  
(D) 256  
(E) 400

16. According to the formula  $F = \frac{9}{5}C + 32$ , if the temperature in degrees Fahrenheit (F) increases by 27, by how much does the temperature in degrees Celsius (C) increase?

(A) 9  
(B) 15  
(C) 47  
(D)  $48\frac{3}{5}$   
(E) 59

17. For all values of  $y$ , let  $y \star$  be defined by

$y \star = y^2 - 1$ . Which of the following is equal to  $(y \star) \star$ ?

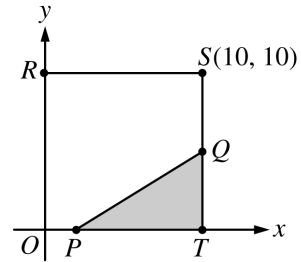
(A)  $y^4 - 1$   
(B)  $y^4 - y^2 - 1$   
(C)  $y^4 + y^2 - 1$   
(D)  $y^4 - 2y^2$   
(E)  $y^4 - 2y^2 + 1$

18. If three different circles are drawn on a piece of paper, at most how many points can be common to all three?

(A) None  
(B) One  
(C) Two  
(D) Three  
(E) Six

19. A club is buying boxes of candy bars to sell for a fundraiser. If each box contains  $c$  candy bars, and each member sells  $x$  bars each day, how many boxes are needed to supply enough candy bars for  $3c$  members to sell for 5 days?

- (A)  $15c^2x$   
(B)  $\frac{x}{15}$   
(C)  $\frac{3x}{5}$   
(D)  $\frac{15c^2}{x}$   
(E)  $15x$



Note: Figure not drawn to scale.

20. In the figure above, the coordinates of  $P$  are  $(10 - 2a, 0)$  and the coordinates of  $Q$  are  $(10, a)$ . A point in square  $ORST$  is to be chosen at random. If the probability that the point will be in the shaded triangle is  $\frac{1}{5}$ , what is the value of  $a$ ?
- (A)  $\sqrt{5}$   
(B)  $\sqrt{10}$   
(C)  $2\sqrt{5}$   
(D)  $2\sqrt{10}$   
(E) 5

**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.



**SECTION 8**

Time — 20 minutes

19 Questions

**Turn to Section 8 (page 7) of your answer sheet to answer the questions in this section.****Directions:** For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

**Example:**

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful  
 (B) end . . divisive  
 (C) overcome . . unattractive  
 (D) extend . . satisfactory  
 (E) resolve . . acceptable

(A) (B) (C) (D) ●

- Originally ----- mainly by young, urban audiences, rap music was ultimately ----- by its appreciative listeners of all ages across the country.
 

(A) admired . . embraced  
 (B) performed . . condemned  
 (C) derided . . ignored  
 (D) appropriated . . relinquished  
 (E) applauded . . instigated
- It was out of ----- that Professor Green, the author of several highly respected books in his field, described himself to his colleagues as ----- .
 

(A) embarrassment . . a paragon  
 (B) magnanimity . . an avenger  
 (C) insolence . . a pedant  
 (D) egotism . . an apprentice  
 (E) modesty . . a dilettante
- Historian Carlo Botta often contradicted himself, as when he first championed and then ----- the ideals of the French Revolution.
 

(A) invoked (B) investigated (C) conceived  
 (D) coveted (E) denounced
- Luisa worked with extreme precision, ----- that served her well in her law career.
 

(A) a meticulousness (B) an effrontery  
 (C) an inhibition (D) a litigiousness  
 (E) an impetuosity
- In 1916 Yellowstone National Park had only 25 bison, but the population has since ----- to more than 2,000.
 

(A) dispersed (B) mediated (C) attenuated  
 (D) burgeoned (E) reconciled
- Though surgeon and researcher Charles Drew never enjoyed celebrity, he truly deserves to be ----- for his life's achievements.
 

(A) mollified (B) lionized (C) accosted  
 (D) galvanized (E) vilified



The passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in the passage and in any introductory material that may be provided.

**Questions 7-19 are based on the following passage.**

*The passage below is from a 1991 autobiography that focuses on an African American woman's adolescent experiences at a prestigious boarding school. The passage describes one part of a meeting of parents, admissions officers, and prospective students. The story the mother recounts at this meeting took place in 1965.*

My mother began to tell a story about a science award I had won in third grade. She started with the winning—the long, white staircase in the auditorium, and how the announcer called my name twice because we were way at the back and it took me so long to get down those steps.

Mama's eyes glowed. She was a born raconteur, able to increase the intensity of her own presence and fill the room. She was also a woman who seldom found new audiences for her anecdotes, so she made herself happy, she insisted, with us children, her mother, her sisters, her grandparents—an entire clan of storytellers competing for a turn on the family stage. This time all eyes were on my mother. Her body, brown and plump and smooth, was shot through with energy. This time the story had a purpose.

She told them how my science experiment almost did not get considered in the citywide competition. My third-grade teacher, angry that I'd forgotten to bring a large box for displaying and storing the experiment, made me pack it up to take home. (Our teacher had told us that the boxes were needed to carry the experiments from our class to the exhibition room, and she'd emphasized that she would not be responsible for finding thirty boxes on the day of the fair. Without a box, the experiment would have to go home. Other kids, White kids, had forgotten boxes during the week. They'd brought boxes the next day. I asked for the same dispensation, but was denied. The next day was the fair, she said. That was different.)

I came out of school carrying the pieces of an experiment my father had picked out for me from a textbook. This was a simple buoyancy experiment where I weighed each object in the air and then in water, to prove they weighed less in water. I had with me the scale, a brick, a piece of wood, a bucket, and a carefully lettered poster.

Well, my mother marched me and my armload of buoyant materials right back into school and caught the teacher before she left. The box was the only problem? Just the box? Nothing wrong with the experiment? An excited eight year old had forgotten a lousy, stinking box that you can get from the supermarket and for that, she was out of the running? The teacher said I had to learn to follow directions. My mother argued that I had followed

directions by doing the experiment by myself, which was more than you could say for third graders who'd brought dry-cell batteries that lit light bulbs and papier-mâché volcanoes that belched colored lava.

"Don't you ever put me in a position like that again," Mama said when we were out of earshot of the classroom. "You never know who is just waiting for an excuse to shut us out."

We got the box; my experiment went into the fair; I won the prize at school. I won third prize for my age group in the city.

When Mama finished her story, my ears began to burn. I could not help but believe that they would see through this transparent plug, and before I had even laid hands on an application. They'd think we were forward and pushy. I forgot, for the moment, how relieved I'd felt when Mama had stood in front of that teacher defending me with a blinding sense of purpose, letting the teacher know that I was not as small and Black and alone as I seemed, that I came from somewhere, and where I came from, she'd better believe, somebody was home.

The other mothers nodded approvingly. My father gave me a wide, clever-girl smile. The officials from the school looked at me deadpan. They seemed amused by my embarrassment.

The story was an answer (part rebuke and part condolence) to the school stories that the admissions people told, where no parents figured at all. It was a message about her maternal concerns, and a way to prove that racism was not some vanquished enemy, but a real, live person, up in your face, ready, for no apparent reason, to mess with your kid. When I was in third grade, Mama could do her maternal duty and face down a White teacher who would have deprived me of an award. Who at this new school would stand up for her child in her stead?

7. In line 11, "competing" portrays the members of the author's family as
- (A) vying for the mother's attention
  - (B) feeling eager to tell their own stories
  - (C) taking issue with each other over household duties
  - (D) selectively sharing information about their experiences
  - (E) comparing educational accomplishments



8. The third paragraph (lines 15-27) presents the author's third-grade teacher as being primarily
- (A) critical of the author's grandiose ambitions
  - (B) disillusioned about her students' lack of interest in science
  - (C) concerned that children would never develop a sense of decorum
  - (D) arbitrary in implementing rules affecting the class
  - (E) bitter and outspoken about injustices in her school district
9. In line 26, "dispensation" refers to permission for the author to
- (A) have an additional day to complete the experiment
  - (B) bring a container for her experiment the next day
  - (C) ask her father to help her design the display
  - (D) leave school early to look for a box
  - (E) discuss her experiment with the other children
10. The child most likely intended to use the "bucket" (line 33) as
- (A) an object to counterbalance the weight of another object
  - (B) a means of steadying the scale in the experiment
  - (C) a container to carry the other materials for the project
  - (D) a receptacle for the water used in the experiment
  - (E) a way of transporting liquid from place to place
11. Lines 34-36 ("Well . . . left") portray the mother's attitude of
- (A) sudden bewilderment
  - (B) weary disappointment
  - (C) protective generosity
  - (D) overwhelming dismay
  - (E) righteous indignation
12. The mother most probably intended the questions in lines 36-40 to
- (A) underscore the absurdity of the teacher's position
  - (B) request clarification from the child about the incident
  - (C) express concern over her daughter's forgetfulness
  - (D) lessen the child's preoccupation with how her project would be received
  - (E) help herself understand her child's defensiveness about the box issue
13. Between the mention of a hypothetical "box" in line 23 and its characterization in line 38, the box has changed from a
- (A) requirement to something that is no longer needed
  - (B) necessity to something that has little inherent value
  - (C) diversion to something that requires a desperate search
  - (D) tool to something that is a source of entertainment
  - (E) puzzle to something that provides clarity and strength
14. In line 55, the author uses the word "plug" primarily to emphasize her feeling that
- (A) the conversational void was nearly intolerable
  - (B) the boarding school had been highly overrated
  - (C) her mother had gone too far in promoting her
  - (D) her mother's words and actions were entirely at odds
  - (E) the interviewers' praise would prove to be insincere
15. In line 59, "blinding" suggests all of the following EXCEPT
- (A) unswerving
  - (B) dazzling
  - (C) overpowering
  - (D) determined
  - (E) sudden
16. The phrase "somebody was home" (line 62) captures the mother's
- (A) desire to create a comfortable life for her family
  - (B) eagerness to learn the results of the interview
  - (C) despair over the unfairness of the teacher's instructions
  - (D) need to capture everyone's full attention
  - (E) sense of responsibility toward her daughter
17. The details presented in lines 63-66 primarily serve to
- (A) illustrate the various reactions to the mother's story
  - (B) satirize the pomposity of the school officials
  - (C) emphasize the sense of unity among parents of prospective students
  - (D) convey a sense of unease
  - (E) clarify a preceding statement



18. The final paragraph presents the author's assessment of her mother's story as a

- (A) pronouncement about forgiveness and understanding
- (B) lesson and forewarning for school officials
- (C) personal argument for the importance of hard work
- (D) defense of a theory about social attitudes
- (E) parting message to her daughter

19. A central purpose of the passage is to

- (A) illustrate the character of the author's mother
- (B) portray the admissions process for boarding schools at that time
- (C) show the author's repressed hostility toward her mother
- (D) comment on examples of racism in the United States
- (E) reveal how the author became skeptical of human nature

**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.



## SECTION 9

Time — 20 minutes

16 Questions

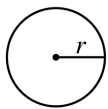
Turn to Section 9 (page 7) of your answer sheet to answer the questions in this section.

**Directions:** For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

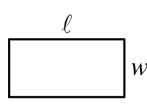
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
- Unless otherwise specified, the domain of any function  $f$  is assumed to be the set of all real numbers  $x$  for which  $f(x)$  is a real number.

Reference Information

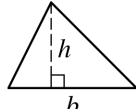


$$A = \pi r^2$$

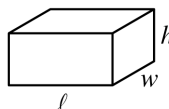
$$C = 2\pi r$$



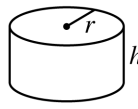
$$A = \ell w$$



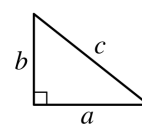
$$A = \frac{1}{2}bh$$



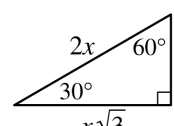
$$V = \ell wh$$



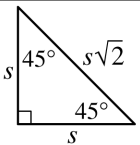
$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



Special Right Triangles

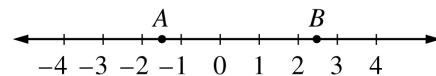


The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. If  $\frac{1}{x+1} = \frac{1}{2}$ , what is the value of  $x$ ?

- (A) 2  
(B) 1  
(C) 0  
(D) -1  
(E) -2



2. Which of the following is the best estimate of the length of segment  $\overline{AB}$  on the number line above?

- (A) 4  
(B) 3.5  
(C) 3  
(D) 1.5  
(E) 1

GO ON TO THE NEXT PAGE

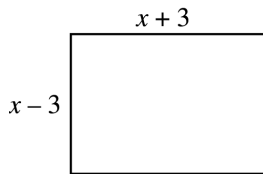


3. For which of the following lists of 7 numbers is the average (arithmetic mean) less than the median?

(A) 1, 2, 3, 8, 9, 10, 11  
 (B) 3, 4, 5, 8, 11, 12, 13  
 (C) 5, 5, 5, 8, 11, 11, 11  
 (D) 5, 6, 7, 8, 9, 10, 11  
 (E) 5, 6, 7, 8, 9, 10, 20

5. For which of the following functions is it true that  $f(-2) = f(2)$ ?

(A)  $f(x) = \frac{3}{x}$   
 (B)  $f(x) = 2 - x$   
 (C)  $f(x) = x + 1$   
 (D)  $f(x) = x^2 + 1$   
 (E)  $f(x) = 2x^3$



4. If the perimeter of the rectangle above is 72, what is the value of  $x$ ?

(A) 9  
 (B) 15  
 (C) 18  
 (D) 21  
 (E) 36

6. Wayne would like to buy a school jacket priced at \$81, but the price of the jacket is \$59 more than he has. In which of the following equations does  $x$  represent the number of dollars Wayne has?

(A)  $x + 81 = 59$   
 (B)  $x - 81 = 59$   
 (C)  $x - 59 = -81$   
 (D)  $x - 81 = -59$   
 (E)  $x - 59 = 81$



7. Which of the following must be true for all integers  $a$ ,  $b$ , and  $c$ ?

- I.  $a - 0 = a$
- II.  $a - b = b - a$
- III.  $(a - b) - c = a - (b - c)$

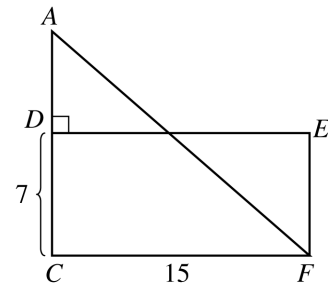
- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) II and III

8. If  $a^2 = b^{10}c^8$ , and if  $a$ ,  $b$ , and  $c$  are positive numbers, then  $a =$

- (A)  $\frac{b^{10}c^8}{2}$
- (B)  $b^5c^8$
- (C)  $\frac{b^5c^8}{2}$
- (D)  $b^5c^4$
- (E)  $\frac{b^5c^4}{2}$

9. On a map, the length of the road from Town  $A$  to Town  $B$  is measured to be 12 inches. On this map,  $\frac{3}{4}$  inch represents an actual distance of 8 miles. What is the actual distance, in miles, from Town  $A$  to Town  $B$  along this road?

- (A) 128
- (B) 102
- (C) 96
- (D) 90
- (E) 72



Note: Figure not drawn to scale.

10. In the figure above, if the area of triangle  $CAF$  is equal to the area of rectangle  $CDEF$ , what is the length of segment  $AD$ ?

- (A)  $\frac{7}{2}$
- (B) 5
- (C) 7
- (D)  $\frac{15}{2}$
- (E) 15

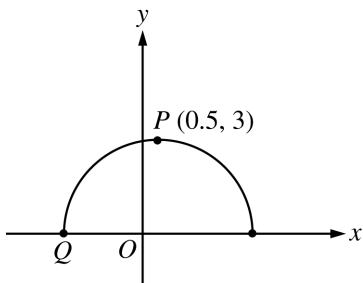


11. Six points are placed on a circle. What is the greatest number of different lines that can be drawn so that each line passes through two of these points?

(A) 12  
(B) 15  
(C) 25  
(D) 30  
(E) 36

13. A garden has  $r$  parallel rows of plants, with 5 plants in each row. If  $x$  plants are added to each row, how many plants will then be in the garden, in terms of  $r$  and  $x$ ?

(A)  $5rx$   
(B)  $5r + x$   
(C)  $5r + rx$   
(D)  $5r + 5x$   
(E)  $r + 5 + x$



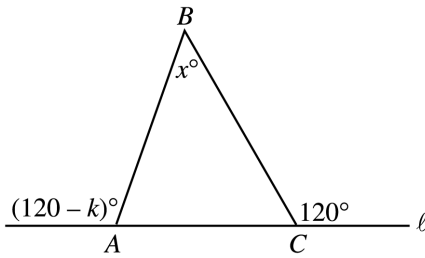
12. Point  $P$  is the point with the greatest  $y$ -coordinate on the semicircle shown above. What is the  $x$ -coordinate of point  $Q$ ?

(A)  $-3.5$   
(B)  $-3$   
(C)  $-2.5$   
(D)  $-2$   
(E)  $-1.5$

14. Three lines are drawn in a plane so that there are exactly three different intersection points. Into how many nonoverlapping regions do these lines divide the plane?

(A) Three  
(B) Four  
(C) Five  
(D) Six  
(E) Seven





Note: Figure not drawn to scale.

15. In the figure above, side  $\overline{AC}$  of  $\triangle ABC$  is on line  $\ell$ .  
What is  $x$  in terms of  $k$ ?
- (A)  $60 - k$   
(B)  $k$   
(C)  $60 + k$   
(D)  $120 - k$   
(E)  $120 - 2k$

16. If  $s$  denotes the sum of the integers from 1 to 30 inclusive, and  $t$  denotes the sum of the integers from 31 to 60 inclusive, what is the value of  $t - s$ ?
- (A) 30  
(B) 31  
(C) 180  
(D) 450  
(E) 900

**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.


**SECTION 10**

Time — 10 minutes

14 Questions

**Turn to Section 10 (page 7) of your answer sheet to answer the questions in this section.**

**Directions:** For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Laura Ingalls Wilder published her first book and she was sixty-five years old then.

- (A) and she was sixty-five years old then
- (B) when she was sixty-five
- (C) at age sixty-five years old
- (D) upon the reaching of sixty-five years
- (E) at the time when she was sixty-five

(A)  (B)  (C)  (D)  (E)

1. A recent discovery is the finding that people who both drink and smoke are greater cancer risks than those who do only one of these things.
  - (A) A recent discovery is the finding that
  - (B) A recent discovery came when they learned that
  - (C) Recently, a finding is that
  - (D) It has recently been discovered that
  - (E) It is a recent discovery that
  
2. The notion that a biography should be full of praise and free of criticism prevailed during most of the nineteenth century.
  - (A) The notion that a biography should be full of praise and free of criticism prevailed during most of the nineteenth century.
  - (B) The notion that prevailed about a biography during most of the nineteenth century was that of being full of praise and free of criticism.
  - (C) During most of the nineteenth century, they had a prevalent notion that a biography should be full of praise and free of criticism.
  - (D) Prevalent as a notion during most of the nineteenth century was for a biography to be full of praise and free of criticism.
  - (E) Prevalent during most of the nineteenth century, the notion prevailed that a biography should be full of praise and free of criticism.
  
3. A native New Yorker, Gloria Naylor's first novel won an American Book Award in 1983.
  - (A) A native New Yorker, Gloria Naylor's first novel
  - (B) A native New Yorker, the first novel by Gloria Naylor
  - (C) The first novel by native New Yorker Gloria Naylor
  - (D) Gloria Naylor, a native New Yorker, wrote her first novel thus having
  - (E) Gloria Naylor wrote her first novel and the native New Yorker
  
4. Charlie Chaplin developed definite ideas about the art of comedy and as a result sentiment, satire, and social criticism were introduced into his work.
  - (A) sentiment, satire, and social criticism were introduced
  - (B) sentiment, satire, and social criticism were introduced by him
  - (C) having introduced sentiment, satire, and social criticism
  - (D) introduced sentiment, satire, and social criticism
  - (E) the introduction of sentiment, satire, and social criticism

GO ON TO THE NEXT PAGE



5. Someone living in a technological, consumption-oriented culture probably taxes the environment at a rate many times that of a country such as Myanmar.
- (A) that of a country such as Myanmar  
(B) that of someone living in a country like Myanmar  
(C) what you find in Myanmar, for instance  
(D) the rate in a country such as Myanmar  
(E) a citizen of Myanmar, for instance
6. Airport runways must be constantly swept clear of trash and other debris that could be sucked into a jet-engine intake or it could cause a serious accident.
- (A) intake or it could cause a serious accident  
(B) intake, this causes a serious accident  
(C) intake and cause a serious accident  
(D) intake, preventing a serious accident  
(E) intakes and avoiding a serious accident
7. In believing that firsthand experience would enhance the credibility of his biography of Columbus, Professor Morison retraced the route of Columbus' first voyage.
- (A) In believing that  
(B) Believing that  
(C) In his belief that  
(D) He believed that  
(E) By believing that
8. Except in mathematics, absolute proof is more often an ideal to be sought than a goal to be reached, a fact that the courts recognize by setting varying standards of proof for different kinds of cases.
- (A) a fact that the courts recognize by setting  
(B) which the courts recognize and set  
(C) and this is recognized when the courts are setting  
(D) and it is recognized by the courts when they set  
(E) and the courts recognize this fact setting
9. My grandfather never learned to use a calculator, as he shops he can accurately compute his grocery bill in his head to within a dollar.
- (A) as he shops  
(B) while shopping  
(C) but as he shops  
(D) therefore, when shopping  
(E) however, he shops so that
10. The first African American woman to win the Pulitzer Prize for poetry, Gwendolyn Brooks with her special interest in encouraging young poets.
- (A) with her special interest in encouraging  
(B) had a special interest in encouraging  
(C) having had a special interest, which was to encourage  
(D) who had a special interest in encouraging  
(E) she had a special interest to encourage
11. Although fascinated by chance and coincidence, Paul Auster's novels are written with careful attention to style and balance.
- (A) Paul Auster's novels are written  
(B) Paul Auster's novels were written  
(C) Paul Auster writes his novels  
(D) Paul Auster is a writer  
(E) Paul Auster had wrote
12. Early American factories did not so much replace household manufacturing but complement it.
- (A) but complement  
(B) as complement  
(C) but they complemented  
(D) and they complemented  
(E) as they were to complement



13. After teaching, becoming involved in several fashion enterprises, and after she founded the Harlem Institute of Fashion, Lois Alexander Lane launched the Black Fashion Museum.
- (A) after she founded  
(B) after the founding of  
(C) founding  
(D) she had founded  
(E) having founded
14. In eighteenth-century France, economic inequalities made many people angry, and a violent revolution was fueled.
- (A) angry, and a violent revolution was fueled  
(B) angry; it fueled a violent revolution  
(C) angry, and this anger fueled a violent revolution  
(D) angry, that anger fueled a violent revolution  
(E) angry; thus fueling a violent revolution

**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.**