



SECTION 6

Time — 25 minutes

18 Questions

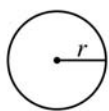
Turn to Section 6 (page 6) of your answer sheet to answer the questions in this section.

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

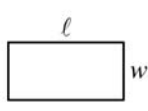
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. 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

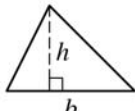


$$A = \pi r^2$$

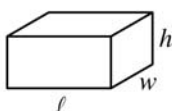
$$C = 2\pi r$$



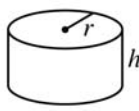
$$A = \ell w$$



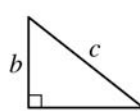
$$A = \frac{1}{2}bh$$



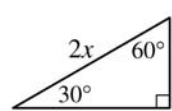
$$V = \ell wh$$



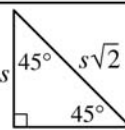
$$V = \pi r^2 h$$



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



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.

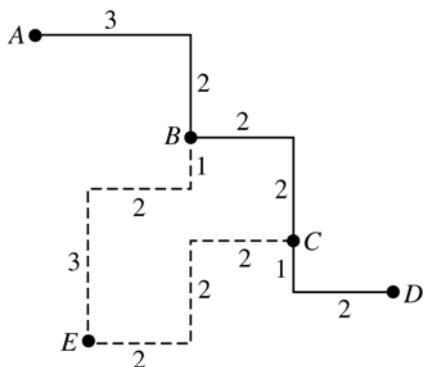
1. If $x + k = 12$ and $p(x + k) = 36$, what is the value of p ?

- (A) 3
(B) 4
(C) 6
(D) 9
(E) 12

2. If 13 is added to one-half of a certain number, the result is 37. What is the original number?

- (A) 24
(B) 40
(C) 48
(D) 61
(E) 80

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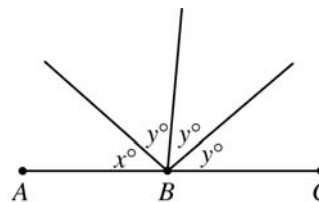
3. In the figure above, the usual route from Town A to Town D is indicated by the solid line. The broken line indicates a detour route from B to C through E . Each line segment is labeled with its length in miles. How many more miles is the trip from Town A to Town D via the detour than via the usual route?

(A) 4
(B) 8
(C) 10
(D) 12
(E) 18

x	y
1	7.5
2	13.0
3	18.5
4	24.0

4. Which of the following equations expresses y in terms of x for each of the four pairs of values shown in the table above?

(A) $y = 5x + 7.5$
(B) $y = 5.5x + 2$
(C) $y = 5.5x + 7.5$
(D) $y = 7.5x$
(E) $y = 7.5x + 5.5$



Note: Figure not drawn to scale.

5. In the figure above, point B lies on \overline{AC} . If x and y are integers, which of the following is a possible value of x ?

(A) 30
(B) 35
(C) 40
(D) 50
(E) 55

6. The least and greatest numbers in a list of 7 real numbers are 2 and 20, respectively. The median of the list is 6, and the number 3 occurs most often in the list. Which of the following could be the average (arithmetic mean) of the numbers in the list?

I. 7
II. 8.5
III. 10

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



7. In the xy -coordinate plane, how many points are a distance of 4 units from the origin?

(A) One
(B) Two
(C) Three
(D) Four
(E) More than four

Family	Number of Consecutive Nights
Jackson	10
Callan	5
Epstein	8
Liu	6
Benton	8

8. The table above shows the number of consecutive nights that each of five families stayed at a certain hotel during a 14-night period. If the Liu family's stay did not overlap with the Benton family's stay, which of the 14 nights could be a night on which only one of the five families stayed at the hotel?

(A) The 3rd
(B) The 5th
(C) The 6th
(D) The 8th
(E) The 10th



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.

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

Write answer in boxes. →

7	/	1	2
•	•	•	•
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	6
7	7	7	7
8	8	8	8
9	9	9	9

Grid in result. →

← Fraction line

Answer: 2.5

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

2	0	1
•	•	•
0	0	0
1	1	1
2	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 $\frac{31}{2}$ 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	2
3	3	3
4	4	4
5	5	5
6	6	6

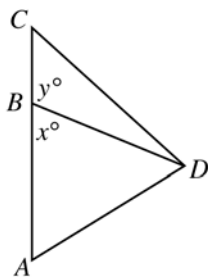
.	6	6	6
•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

.	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	6	6	6

9. If a cake is cut into thirds and each third is cut into fourths, how many pieces of cake are there?

10. If $y = \frac{h}{x}$, where h is a constant, and if $y = 3$ when $x = 4$, what does y equal when $x = 6$?

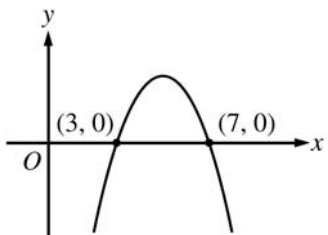
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Note: Figure not drawn to scale.

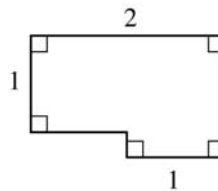
11. In the figure above, point B lies on side \overline{AC} . If $55 < x < 60$, what is one possible value of y ?

12. The price of a certain item was \$10 in 1990 and it has gone up by \$2 per year since 1990. If this trend continues, in what year will the price be \$100?



13. The figure above shows the graph of a quadratic function in the xy -plane. Of all the points (x, y) on the graph, for what value of x is the value of y greatest?

14. The number n is a 2-digit number. When n is divided by 10, the remainder is 9, and when n is divided by 9, the remainder is 8. What is the value of n ?



15. The area of the figure above is $\frac{9}{4}$. What is the perimeter of the figure?

16. If j is chosen at random from the set $\{4, 5, 6\}$ and k is chosen at random from the set $\{10, 11, 12\}$, what is the probability that the product of j and k is divisible by 5?

17. Tom and Alison are both salespeople. Tom's weekly compensation consists of \$300 plus 20 percent of his sales. Alison's weekly compensation consists of \$200 plus 25 percent of her sales. If they both had the same amount of sales and the same compensation for a particular week, what was that compensation, in dollars? (Disregard the dollar sign when gridding your answer.)

$$tx + 12y = -3$$

18. The equation above is the equation of a line in the xy -plane, and t is a constant. If the slope of the line is -10 , what is the value of t ?

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.

Correct Answers and Difficulty Levels

Critical Reading

Section 4			Section 7			Section 8		
COR. DIFF. ANS. LEV.			COR. DIFF. ANS. LEV.			COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.
1. E 1		13. A 3	1. D 1		13. C 3	1. B 1		11. C 3
2. C 1		14. B 4	2. D 1		14. E 3	2. D 2		12. B 3
3. A 4		15. B 3	3. A 2		15. C 3	3. E 3		13. B 3
4. E 2		16. D 1	4. C 5		16. C 3	4. D 3		14. A 2
5. D 4		17. C 3	5. B 5		17. D 2	5. E 5		15. E 3
6. E 4		18. E 5	6. E 3		18. D 2	6. D 5		16. D 2
7. B 5		19. A 3	7. B 1		19. E 4	7. A 3		17. C 4
8. A 5		20. B 4	8. C 4		20. E 5	8. C 3		18. C 3
9. C 3		21. A 4	9. A 5		21. A 4	9. D 3		19. E 3
10. C 2		22. B 2	10. B 3		22. D 3	10. D 3		
11. A 2		23. D 3	11. B 5		23. B 3			
12. E 1		24. B 3	12. A 3		24. E 3			

Number correct

Number correct

Number correct

Number incorrect

Number incorrect

Number incorrect

Math

Section 2		Section 6			Section 9	
COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	Multiple-Choice Questions COR. DIFF. ANS. LEV.	Student-Produced Response Questions COR. ANS.	DIFF. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.
1. D 1	11. E 3	1. A 1	9. 12	1	1. A 1	9. C 3
2. B 1	12. E 2	2. C 1	10. 2	2	2. B 1	10. A 3
3. D 1	13. E 3	3. B 2	11. $120 < x < 125$	2	3. D 1	11. D 3
4. C 1	14. A 4	4. B 2	12. 2035	3	4. C 1	12. E 4
5. B 2	15. A 4	5. A 3	13. 5	3	5. C 3	13. B 4
6. A 2	16. B 4	6. E 5	14. 89	3	6. A 2	14. C 4
7. A 2	17. B 5	7. E 4	15. $13/2$ or 6.5	4	7. D 3	15. C 5
8. C 3	18. D 4	8. A 4	16. $5/9$, .555 or .556	4	8. E 3	16. E 5
9. C 3	19. C 5		17. 700	5		
10. D 2	20. D 5		18. 120	4		

Number correct

Number correct

Number correct
(9-18)

Number correct

Number incorrect

Number incorrect

Number incorrect

Writing

Section 5				Section 10		
COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.
1. D 1	10. E 3	19. E 3	28. C 5	1. C 1	6. B 2	11. A 3
2. C 1	11. C 3	20. A 3	29. B 5	2. C 1	7. E 1	12. C 4
3. A 1	12. B 1	21. C 3	30. B 3	3. A 1	8. D 3	13. E 5
4. E 1	13. E 3	22. B 3	31. E 3	4. C 2	9. A 3	14. E 5
5. C 1	14. C 2	23. B 3	32. D 3	5. B 1	10. D 3	
6. B 1	15. C 2	24. A 3	33. A 3			
7. E 2	16. E 3	25. C 4	34. C 4			
8. C 2	17. C 3	26. B 3	35. E 3			
9. A 2	18. B 3	27. B 4				

Number correct

Number correct

Number incorrect

Number incorrect

NOTE: Difficulty levels are estimates of question difficulty for a reference group of college-bound seniors. Difficulty levels range from 1 (easiest) to 5 (hardest).

SAT Score Conversion Table

Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score*	Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score*
67	800			31	510	560	54
66	800			30	500	550	54
65	800			29	500	540	53
64	780			28	490	530	52
63	760			27	480	530	51
62	750			26	480	520	50
61	730			25	470	510	49
60	720			24	460	500	48
59	710			23	460	490	47
58	700			22	450	480	47
57	690			21	450	470	46
56	680			20	440	460	45
55	670			19	430	450	44
54	660	800		18	430	440	43
53	650	800		17	420	430	42
52	640	780		16	410	420	41
51	640	760		15	410	420	41
50	630	740		14	400	410	40
49	620	730	80	13	390	400	39
48	610	720	78	12	380	390	38
47	610	710	75	11	380	380	37
46	600	700	73	10	370	370	36
45	590	690	71	9	360	360	35
44	590	680	69	8	350	350	34
43	580	670	67	7	340	330	33
42	580	660	66	6	330	320	32
41	570	650	65	5	320	310	31
40	560	640	64	4	310	290	30
39	560	630	62	3	300	280	28
38	550	620	61	2	280	260	27
37	540	620	60	1	270	240	25
36	540	610	59	0	250	210	24
35	530	600	58	-1	230	200	22
34	530	590	57	-2	210	200	20
33	520	580	56	-3	200	200	20
32	510	570	55	and below			

This table is for use only with the test in this booklet.

*The writing multiple-choice score is reported on a 20-80 scale. Use the table on the following page for the writing composite scaled score.