

**MATHEMATICS LEVEL IIC TEST**

The test that follows is an actual, recently administered SAT II: Mathematics Level IIC Subject Test. To get an idea of what a real administration is like, take the test under conditions as close as possible to those of a national administration:

- Set aside an hour when you can take the test uninterrupted. Make sure you complete the test in one sitting.
- Sit at a desk or table with no other books or papers. Dictionaries, other books, or notes are not allowed in the test room.
- Remember to have a scientific or graphing calculator with you.
- Time yourself by placing a clock or kitchen timer in front of you.
- Tear out an answer sheet from the back of this book and fill it in just as you would on the day of the test. One answer sheet can be used for up to three Subject Tests.
- Read the instructions that precede the practice test. During the actual administration you will be asked to read them before answering test questions. Become familiar with the directions so you aren't seeing them for the first time during the actual administration.
- After you finish the practice test, read the sections "How to Score the SAT II: Mathematics Level IIC Subject Test" and "Reviewing Your Performance on the Mathematics Level IIC Test."

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**MATHEMATICS LEVEL IIC TEST**

## REFERENCE INFORMATION

THE FOLLOWING INFORMATION IS FOR YOUR REFERENCE IN ANSWERING SOME OF THE QUESTIONS IN THIS TEST.

Volume of a right circular cone with radius  $r$  and height  $h$ :  $V = \frac{1}{3}\pi r^2 h$

Lateral Area of a right circular cone with circumference of the base  $c$  and slant height  $l$ :  $S = \frac{1}{2}cl$

Volume of a sphere with radius  $r$ :  $V = \frac{4}{3}\pi r^3$

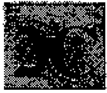
Surface Area of a sphere with radius  $r$ :  $S = 4\pi r^2$

Volume of a pyramid with base area  $B$  and height  $h$ :  $V = \frac{1}{3}Bh$

**DO NOT DETACH FROM BOOK.**

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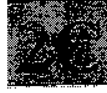
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## MATHEMATICS LEVEL IIC TEST

For each of the following problems, decide which is the BEST of the choices given. If the exact numerical value is not one of the choices, select the choice that best approximates this value. Then fill in the corresponding oval on the answer sheet.

Notes: (1) A calculator will be necessary for answering some (but not all) of the questions in this test. For each question you will have to decide whether or not you should use a calculator. The calculator you use must be at least a scientific calculator; programmable calculators and calculators that can display graphs are permitted.

(2) For some questions in this test you may have to decide whether your calculator should be in the radian mode or the degree mode.

(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 its 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.

(5) Reference information that may be useful in answering the questions in this test can be found on the page preceding Question 1.

USE THIS SPACE FOR SCRATCHWORK.

1. If  $1 - \frac{1}{x} = 3 - \frac{3}{x}$ , then  $1 - \frac{1}{x} =$

- (A)  $-\frac{1}{2}$  (B) 0 (C)  $\frac{1}{2}$  (D)  $\frac{2}{3}$  (E) 3

2.  $a\left(\frac{1}{b} + \frac{1}{c}\right) =$

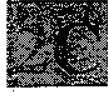
- (A)  $\frac{a}{bc}$   
(B)  $\frac{a}{b+c}$   
(C)  $\frac{2a}{b+c}$   
(D)  $\frac{ab+ac}{bc}$   
(E)  $\frac{1}{ab+ac}$

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MATHEMATICS LEVEL IIC TEST—Continued

USE THIS SPACE FOR SCRATCHWORK.

3. Figure 1 shows one cycle of the graph of the function  $y = \sin x$  for  $0 \leq x \leq 2\pi$ . If the minimum value of the function occurs at point  $P$ , then the coordinates of  $P$  are

- (A)  $\left(\frac{4\pi}{3}, -\pi\right)$   
 (B)  $\left(\frac{4\pi}{3}, -1\right)$   
 (C)  $\left(\frac{3\pi}{2}, -\pi\right)$   
 (D)  $\left(\frac{3\pi}{2}, -1\right)$   
 (E)  $\left(\frac{3\pi}{2}, 0\right)$

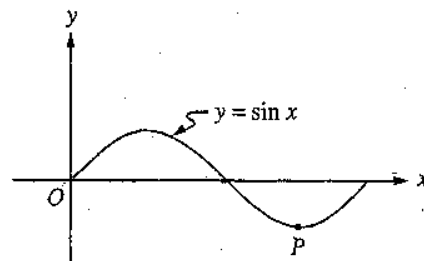


Figure 1

Note: Figure not drawn to scale.

4. If  $P$  and  $Q$  are different points in a plane, the set of all points in this plane that are closer to  $P$  than to  $Q$  is

- (A) the region of the plane on one side of a line  
 (B) the interior of a square  
 (C) a wedge-shaped region of the plane  
 (D) the region of the plane bounded by a parabola  
 (E) the interior of a circle

5. If  $\sqrt{6y} = 4.73$ , then  $y =$

- (A) 0.62 (B) 1.93 (C) 3.73 (D) 5.33 (E) 11.59

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MATHEMATICS LEVEL IIC TEST—Continued

USE THIS SPACE FOR SCRATCHWORK.

6. In Figure 2,  $r \cos \theta =$

- (A)  $x$
- (B)  $y$
- (C)  $r$
- (D)  $x + y$
- (E)  $r + y$

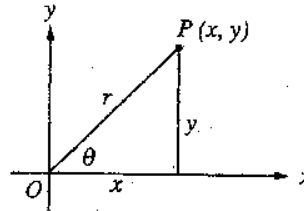


Figure 2

7. If  $f(x) = \sqrt{0.3x^2 - x}$  and  $g(x) = \frac{x+1}{x-1}$ , then  $g(f(10)) =$

- (A) 0.2
- (B) 1.2
- (C) 1.6
- (D) 4.5
- (E) 5.5

8. If  $n$ ,  $p$ , and  $t$  are nonzero real numbers and if

$$n^4 p^7 t^9 = \frac{4n^3 p^7}{t^{-9}}, \text{ then } n =$$

- (A)  $\frac{1}{4}$
- (B)  $\frac{1}{2}$
- (C) 4
- (D)  $4p^2 t^2$
- (E)  $4p^{18} t^{18}$

9. In the triangle in Figure 3, if  $OA = AB$ , what is the slope of segment  $AB$ ?

- (A)  $\sqrt{2}$
- (B)  $\frac{\sqrt{2}}{2}$
- (C)  $-\frac{\sqrt{2}}{2}$
- (D)  $-\sqrt{2}$

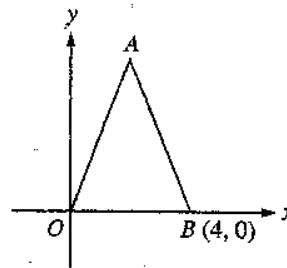
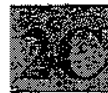


Figure 3

(E) It cannot be determined from the information given.





MATHEMATICS LEVEL IIC TEST — *Continued*

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10. Where defined,  $\csc(2\theta) \sin(2\theta) =$

- (A) 1
- (B) 0
- (C) -1
- (D)  $2 \csc(4\theta)$
- (E)  $2 \sec(4\theta)$

11. The graph of  $y = f(x)$  is shown in Figure 4. Which of the following could be the graph of  $y = |f(x)|$ ?

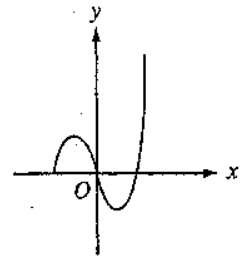
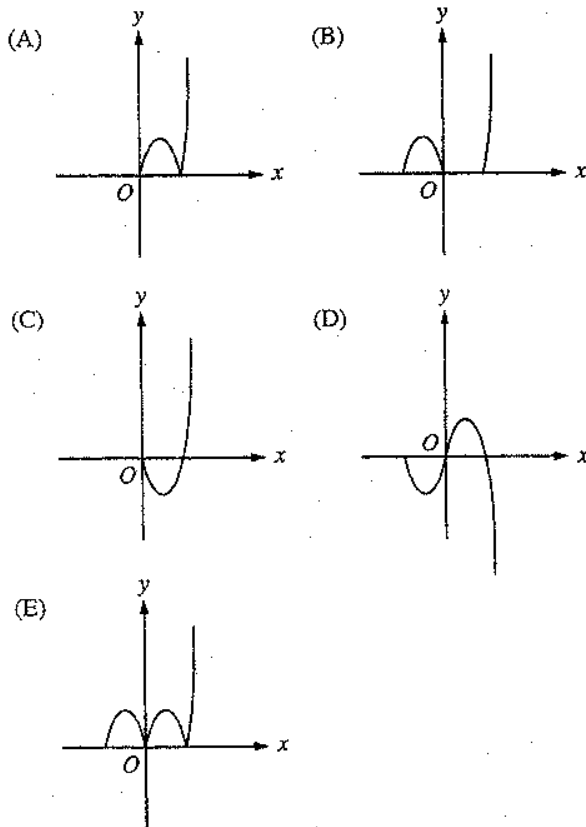


Figure 4

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MATHEMATICS LEVEL IIC TEST—*Continued*

USE THIS SPACE FOR SCRATCHWORK.

12. If 3 and  $-2$  are both zeros of the polynomial  $p(x)$ , then a factor of  $p(x)$  is

(A)  $x^2 - 6$   
(B)  $x^2 - x - 6$   
(C)  $x^2 + 6$   
(D)  $x^2 + x - 6$   
(E)  $x^2 + x + 6$

13. A kite string is attached to a peg in the ground. If 100 meters of kite string are played out on the kite and the string makes an angle of  $49^\circ$  with the ground, what is the distance, in meters, from the kite to the ground? (Assume that the string is taut and the ground is level.)

(A) 133 (B) 115 (C) 75 (D) 66 (E) 52

14. If  $f(x) = 3x + 5$  and  $f(g(1)) = 11$ , which of the following could be  $g(x)$ ?

(A)  $7x - 5$   
(B)  $5x + 7$   
(C)  $5x - 7$   
(D)  $5x + 3$   
(E)  $-5x + 3$



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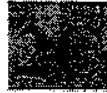
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MATHEMATICS LEVEL IIC TEST—*Continued*

USE THIS SPACE FOR SCRATCHWORK.

15. Figure 5 shows a cube with edge of length 3 centimeters. If points  $A$  and  $C$  are midpoints of the edges of the cube, what is the perimeter of region  $ABCD$ ?

- (A) 6.71 cm  
 (B) 11.25 cm  
 (C) 13.42 cm  
 (D) 22.50 cm  
 (E) 45.00 cm

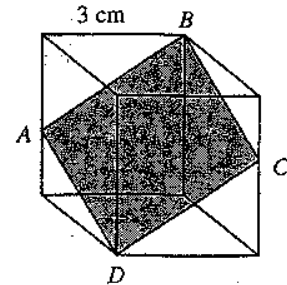


Figure 5

16. An equation of line  $\ell$  in Figure 6 is

- (A)  $x = 2$   
 (B)  $y = 2$   
 (C)  $x = 0$   
 (D)  $y = x + 2$   
 (E)  $x + y = 2$

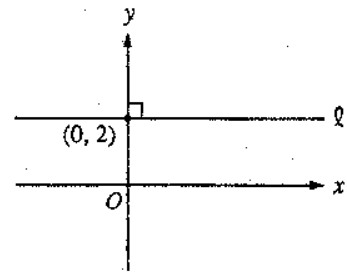


Figure 6

17. The mean weight of the 19 members of an algebra class was 112 pounds. When a new student enrolled, the mean decreased to 111 pounds. What was the weight, in pounds, of the new student?

- (A) 91 (B) 92 (C) 93 (D) 101 (E) 110

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MATHEMATICS LEVEL IIC TEST — *Continued*

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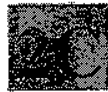
18. If  $0 < x < \pi$  and  $\cos x = 0.875$ , what is the value of

$$\tan\left(\frac{x}{2}\right)?$$

- (A) 0.008  
(B) 0.017  
(C) 0.258  
(D) 0.277  
(E) 0.553
19. Recently 30,744 residents of Lyon County and 20,496 residents of Saline County voted on a referendum. A total of 38,430 residents of the two counties voted yes. If the same percentage of the voters in each county voted yes, how many of the residents of Lyon County voted yes?
- (A) 7,686  
(B) 10,248  
(C) 15,372  
(D) 17,934  
(E) 23,058
20. If  $f: (x, y) \rightarrow (x + 2y, y)$  for every pair  $(x, y)$  in the plane, for what points  $(x, y)$  is it true that  $(x, y) \rightarrow (x, y)$ ?
- (A) The set of points  $(x, y)$  such that  $x = 0$   
(B) The set of points  $(x, y)$  such that  $y = 0$   
(C) The set of points  $(x, y)$  such that  $y = 1$   
(D)  $(0, 0)$  only  
(E)  $(-1, 1)$  only

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MATHEMATICS LEVEL IIC TEST—*Continued*

USE THIS SPACE FOR SCRATCHWORK.

21. What number should be added to each of the three numbers 1, 7, and 19 so that the resulting three numbers form a geometric progression?

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

22. If  $f(x) = ax^2 + bx + c$  for all real numbers  $x$  and if  $f(0) = 1$  and  $f(1) = 2$ , then  $a + b =$

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

23. What is the degree measure of the largest angle of a triangle that has sides of length 7, 6, and 6?

(A)  $31.00^\circ$   
(B)  $54.31^\circ$   
(C)  $71.37^\circ$   
(D)  $125.69^\circ$   
(E)  $144.31^\circ$

24. What is the domain of  $f(x) = \sqrt[3]{-x^2 + 13}$ ?

(A)  $x > 0$   
(B)  $x > 2.35$   
(C)  $-2.35 < x < 2.35$   
(D)  $-3.61 < x < 3.61$   
(E) All real numbers



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## MATHEMATICS LEVEL IIC TEST—Continued

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25. If  $\cos x = \tan x$ , which of the following is a possible radian value of  $x$ ?

- (A)  $-1.00$
- (B)  $-0.52$
- (C)  $0.00$
- (D)  $0.52$
- (E)  $0.67$

26. Figure 7 shows a portion of the graph of  $y = 3^x$ . What is the sum of the areas of the three inscribed rectangles shown?

- (A) 4,698
- (B) 1,638
- (C) 819
- (D) 182
- (E) 91

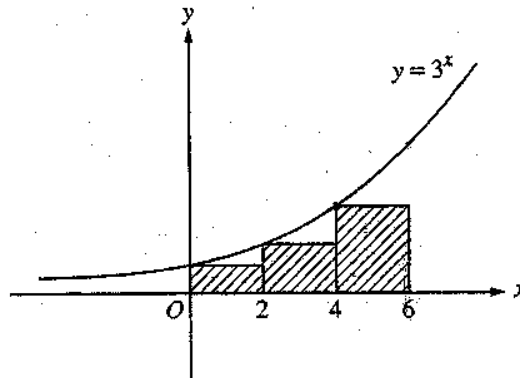


Figure 7

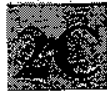
Note: Figure not drawn to scale.

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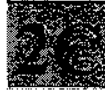
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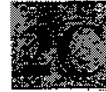
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## MATHEMATICS LEVEL IIC TEST—Continued

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27. When a certain radioactive element decays, the amount that exists at any time  $t$  can be calculated by the function  $E(t) = ae^{\frac{-t}{1,000}}$ , where  $a$  is the initial amount and  $t$  is the elapsed time in years. How many years would it take for an initial amount of 600 milligrams of this element to decay to 300 milligrams?

- (A) 0.5
- (B) 500
- (C) 693
- (D) 1,443
- (E) 5,704

28. Which of the following lines are asymptotes of the graph of  $y = \frac{1+x}{x}$ ?

- I.  $x = 0$
- II.  $y = 0$
- III.  $y = 1$

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

29. If  $f(2x + 1) = 2x - 1$  for all real numbers  $x$ , then  $f(x) =$

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

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## MATHEMATICS LEVEL IIC TEST—Continued

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30. Which of the following could be the coordinates of the center of a circle tangent to the  $x$ -axis and the  $y$ -axis?

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

31. What is the range of the function defined by

$$f(x) = \begin{cases} x^{\frac{1}{3}}, & x > 2 \\ 2x - 1, & x \leq 2 \end{cases} ?$$

(A)  $y > 2^{\frac{1}{3}}$   
(B)  $y \leq 3$   
(C)  $2^{\frac{1}{3}} < y < 3$   
(D)  $y \geq 3$   
(E) All real numbers

32. If  $3x - 4y + 7 = 0$  and  $2y - x^2 = 0$  for  $x \geq 0$ , then  $x =$

(A) 1.27  
(B) 2.07  
(C) 2.77  
(D) 4.15  
(E) 5.53



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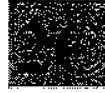
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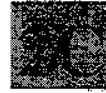
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MATHEMATICS LEVEL IIC TEST — *Continued*

USE THIS SPACE FOR SCRATCHWORK.

33. If  $f(x) = \log_2 x$  for  $x > 0$ , then  $f^{-1}(x) =$

(A)  $2^x$

(B)  $x^2$

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

(D)  $\frac{2}{x}$

(E)  $\log_x 2$

34. If  $x_0 = 0$  and  $x_{n+1} = \sqrt{6 + x_n}$ , then  $x_3 =$

(A) 2.449

(B) 2.907

(C) 2.984

(D) 2.997

(E) 3.162

35. Figure 8 shows a triangle inscribed in a semicircle.  
What is the area of the triangle in terms of  $\theta$ ?

(A)  $\frac{\theta\pi}{2}$

(B)  $\frac{\theta}{2}$

(C)  $\tan \theta$

(D)  $\sin \theta$

(E)  $2 \sin \theta \cos \theta$

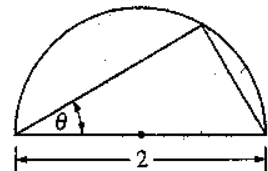


Figure 8

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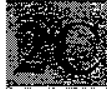
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MATHEMATICS LEVEL IIC TEST—*Continued*

USE THIS SPACE FOR SCRATCHWORK.

36. In a certain experiment, there is a 0.2 probability that any thermometer used is in error by more than  $1^{\circ}\text{C}$ . If 4 thermometers are used, what is the probability that all of them are in error by more than  $1^{\circ}\text{C}$ ?

(A) 0.0016  
(B) 0.0081  
(C) 0.16  
(D) 0.25  
(E) 0.80

37. If the magnitudes of vectors  $\mathbf{a}$  and  $\mathbf{b}$  are 5 and 12, respectively, then the magnitude of vector  $(\mathbf{b} - \mathbf{a})$  could NOT be

(A) 5  
(B) 7  
(C) 10  
(D) 12  
(E) 17

38. If  $(6.31)^m = (3.02)^n$ , what is the value of  $\frac{m}{n}$ ?

(A) -0.32 (B) 0.32 (C) 0.48 (D) 0.60 (E) 1.67



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## MATHEMATICS LEVEL IIC TEST—Continued

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39. If  $\arccos(\cos x) = 0$  and  $0 \leq x \leq \frac{\pi}{2}$ , then  $x$  could equal

(A) 0

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

(C)  $\frac{\pi}{4}$

(D)  $\frac{\pi}{3}$

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

40. If the 20th term of an arithmetic sequence is 100 and the 40th term of the sequence is 250, what is the first term of the sequence?

(A) -50

(B) -42.5

(C) 5

(D) 42.5

(E) 50

41. If  $n$  distinct planes intersect in a line, and another line  $\ell$  intersects one of these planes in a single point, what is the least number of these  $n$  planes that  $\ell$  could intersect?

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

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## MATHEMATICS LEVEL IIC TEST—Continued

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42. For all  $\theta$ ,  $\sin \theta + \sin(-\theta) + \cos \theta + \cos(-\theta) =$

- (A) 0 (B) 2 (C)
- $2 \sin \theta$
- (D)
- $2 \cos \theta$
- (E)
- $2(\sin \theta + \cos \theta)$

43.  $\frac{[(n-1)!]^2}{[n!]^2} =$

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

(B)  $\frac{1}{n^2}$

(C)  $\frac{n-1}{n}$

(D)  $\left(\frac{n-1}{n}\right)^2$

(E)  $(n-1)^2$

44. The radius of the base of a right circular cone is 6 and the radius of a parallel cross section is 4. If the distance between the base and the cross section is 8, what is the height of the cone?

(A) 11

(B)  $13\frac{1}{3}$

(C) 16

(D) 20

(E) 24

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MATHEMATICS LEVEL IIC TEST — *Continued*

USE THIS SPACE FOR SCRATCHWORK.

45. An indirect proof of the statement "If  $x = 2$ , then  $\sqrt{x}$  is not a rational number" could begin with the assumption that
- (A)  $x = \sqrt{2}$
  - (B)  $x^2 = 2$
  - (C)  $\sqrt{x}$  is rational
  - (D)  $\sqrt{x}$  is not rational
  - (E)  $x$  is nonnegative
46. Suppose the graph of  $f(x) = -x^2$  is translated 3 units left and 1 unit up. If the resulting graph represents  $g(x)$ , what is the value of  $g(-1.6)$ ?
- (A) 2.96
  - (B) -0.96
  - (C) -1.56
  - (D) -1.96
  - (E) -2.56
47. In how many ways can 10 people be divided into two groups, one with 7 people and the other with 3 people?
- (A) 120   (B) 210   (C) 240   (D) 5,040   (E) 14,400

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## MATHEMATICS LEVEL IIC TEST—Continued

USE THIS SPACE FOR SCRATCHWORK.

48. Which of the following has an element that is less than any other element in that set?

- I. The set of positive rational numbers
  - II. The set of positive rational numbers  $r$  such that  $r^2 \geq 2$
  - III. The set of positive rational numbers  $r$  such that  $r^2 > 4$
- (A) None  
(B) I only  
(C) II only  
(D) III only  
(E) I and III

49. What is the length of the major axis of the ellipse whose equation is  $60x^2 + 30y^2 = 150$ ?

- (A) 1.26  
(B) 2.50  
(C) 3.16  
(D) 4.47  
(E) 5.00

50. Under which of the following conditions is  $\frac{a-b}{ab}$  positive?

- (A)  $0 < a < b$   
(B)  $a < b < 0$   
(C)  $b < a < 0$   
(D)  $b < 0 < a$   
(E) None of the above

**S T O P**

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS TEST ONLY.  
DO NOT TURN TO ANY OTHER TEST IN THIS BOOK.

**TABLE A**  
**Answers to the SAT II: Mathematics Level IIC Subject Test, Form 3RBC2,**  
**and Percentage of Students Answering Each Question Correctly**

Question Number	Correct Answer	Right	Wrong	Percentage of Students Answering the Question Correctly*	Question Number	Correct Answer	Right	Wrong	Percentage of Students Answering the Question Correctly*
1	B			79	26	D			66
2	D			81	27	C			57
3	D			89	28	D			56
4	A			52	29	C			54
5	C			94	30	D			84
6	A			84	31	E			48
7	C			89	32	C			52
8	C			80	33	A			52
9	E			82	34	C			42
10	A			84	35	E			34
11	E			74	36	A			60
12	B			84	37	A			24
13	C			85	38	D			45
14	A			89	39	A			56
15	C			71	40	B			28
16	B			96	41	B			22
17	B			80	42	D			56
18	C			85	43	B			51
19	E			65	44	E			32
20	B			59	45	C			28
21	D			64	46	B			33
22	D			79	47	A			26
23	C			67	48	A			14
24	E			61	49	D			24
25	E			68	50	C			45

\*These percentages are based on an analysis of the answer sheets of a random sample of 9,983 students who took the original form of this test in June 1995, and whose mean score was 649. They may be used as an indication of the relative difficulty of a particular question. Each percentage may also be used to predict the likelihood that a typical SAT II: Mathematics Level IIC Subject Test candidate will answer correctly that question on this edition of the test.

## How to Score the Mathematics Level IIC Test

When you take the Mathematics Level IIC Subject Test, your answer sheet will be “read” by a scanning machine that will record your responses to each question. Then a computer will compare your answers with the correct answers and produce your raw score. You get one point for each correct answer. For each wrong answer, you lose one-fourth of a point. Questions you omit (and any for which you mark more than one answer) are not counted. This raw score is converted to a scaled score that is reported to you and to the colleges you specify.

### Worksheet 1. Finding Your Raw Test Score

**STEP 1:** Table A (on page 228) lists the correct answers for all the questions on the SAT II: Mathematics Level IIC Subject Test that is reproduced in this book. It also serves as a worksheet for you to calculate your raw score.

- Compare your answers with those given in the table.
- Put a check in the column marked “Right” if your answer is correct.
- Put a check in the column marked “Wrong” if your answer is incorrect.
- Leave both columns blank if you omitted the question.

**STEP 2:** Count the number of right answers.

Enter the total here: \_\_\_\_\_

**STEP 3:** Count the number of wrong answers.

Enter the total here: \_\_\_\_\_

**STEP 4:** Multiply the number of wrong answers by .250.

Enter the product here: \_\_\_\_\_

**STEP 5:** Subtract the result obtained in Step 4 from the total you obtained in Step 2.

Enter the result here: \_\_\_\_\_

**STEP 6:** Round the number obtained in Step 5 to the nearest whole number.

Enter the result here: \_\_\_\_\_

***The number you obtained in Step 6 is your raw score.***

### Finding Your Scaled Score

When you take SAT II: Subject Tests, the scores sent to the colleges you specify are reported on the College Board scale, which ranges from 200 to 800. You can convert your practice test score to a scaled score by using Table B (on page 230). To find your scaled score, locate your raw score in the left-hand column of Table B; the corresponding score in the right-hand column is your scaled score. For example, a raw score of 30 on this particular edition of the SAT II: Mathematics Level IIC Subject Test corresponds to a scaled score of 670.

Raw scores are converted to scaled scores to ensure that a score earned on any one edition of a particular Subject Test is comparable to the same scaled score earned on any other edition of the same Subject Test. Because some editions of tests may be slightly easier or more difficult than others, scaled scores are adjusted so that they indicate the same level of performance regardless of the edition of the test taken and the ability of the group that takes it. Thus, for example, a score of 400 on one edition of a test taken at a particular administration indicates the same level of achievement as a score of 400 on a different edition of the test taken at a different administration.

When you take the SAT II: Subject Tests during a national administration, your scores are likely to differ somewhat from the scores you obtain on the tests in this book. People perform at different levels at different times for reasons unrelated to the tests themselves. The precision of any test is also limited because it represents only a sample of all the possible questions that could be asked.

**TABLE B**  
**Scaled Score Conversion Table**  
**Mathematics Level IIC Test (Form 3RBC2)**

Raw Score	Scaled Score	Raw Score	Scaled Score	Raw Score	Scaled Score
50	800	28	650	6	480
49	800	27	640	5	470
48	800	26	630	4	460
47	800	25	630	3	450
46	800	24	620	2	440
45	800	23	610	1	430
44	800	22	600	0	410
43	800	21	590	-1	390
42	790	20	580	-2	370
41	780	19	570	-3	360
40	770	18	560	-4	340
39	760	17	560	-5	340
38	750	16	550	-6	330
37	740	15	540	-7	320
36	730	14	530	-8	320
35	720	13	530	-9	320
34	710	12	520	-10	320
33	700	11	510	-11	310
32	690	10	500	-12	310
31	680	9	500		
30	670	8	490		
29	660	7	480		

COMPLETE MARK

EXAMPLES OF INCOMPLETE MARKS



You must use a No. 2 pencil. Do not use a mechanical pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

If there are more answer spaces than you need, leave them blank.

Test Code

V	1	2	3	4	5	6	7	8	9
W	1	2	3	4	5	6	7	8	9
X	1	2	3	4	5				
Y	A	B	C	D	E				
Q	1	2	3	4	5	6	7	8	9

Print Subject Test Name:

If you are taking a Language Test select:

Reading Only

Reading and Listening

1	A	B	C	D	E	26	A	B	C	D	E	51	A	B	C	D	E	76	A	B	C	D	E
2	A	B	C	D	E	27	A	B	C	D	E	52	A	B	C	D	E	77	A	B	C	D	E
3	A	B	C	D	E	28	A	B	C	D	E	53	A	B	C	D	E	78	A	B	C	D	E
4	A	B	C	D	E	29	A	B	C	D	E	54	A	B	C	D	E	79	A	B	C	D	E
5	A	B	C	D	E	30	A	B	C	D	E	55	A	B	C	D	E	80	A	B	C	D	E
6	A	B	C	D	E	31	A	B	C	D	E	56	A	B	C	D	E	81	A	B	C	D	E
7	A	B	C	D	E	32	A	B	C	D	E	57	A	B	C	D	E	82	A	B	C	D	E
8	A	B	C	D	E	33	A	B	C	D	E	58	A	B	C	D	E	83	A	B	C	D	E
9	A	B	C	D	E	34	A	B	C	D	E	59	A	B	C	D	E	84	A	B	C	D	E
10	A	B	C	D	E	35	A	B	C	D	E	60	A	B	C	D	E	85	A	B	C	D	E
11	A	B	C	D	E	36	A	B	C	D	E	61	A	B	C	D	E	86	A	B	C	D	E
12	A	B	C	D	E	37	A	B	C	D	E	62	A	B	C	D	E	87	A	B	C	D	E
13	A	B	C	D	E	38	A	B	C	D	E	63	A	B	C	D	E	88	A	B	C	D	E
14	A	B	C	D	E	39	A	B	C	D	E	64	A	B	C	D	E	89	A	B	C	D	E
15	A	B	C	D	E	40	A	B	C	D	E	65	A	B	C	D	E	90	A	B	C	D	E
16	A	B	C	D	E	41	A	B	C	D	E	66	A	B	C	D	E	91	A	B	C	D	E
17	A	B	C	D	E	42	A	B	C	D	E	67	A	B	C	D	E	92	A	B	C	D	E
18	A	B	C	D	E	43	A	B	C	D	E	68	A	B	C	D	E	93	A	B	C	D	E
19	A	B	C	D	E	44	A	B	C	D	E	69	A	B	C	D	E	94	A	B	C	D	E
20	A	B	C	D	E	45	A	B	C	D	E	70	A	B	C	D	E	95	A	B	C	D	E
21	A	B	C	D	E	46	A	B	C	D	E	71	A	B	C	D	E	96	A	B	C	D	E
22	A	B	C	D	E	47	A	B	C	D	E	72	A	B	C	D	E	97	A	B	C	D	E
23	A	B	C	D	E	48	A	B	C	D	E	73	A	B	C	D	E	98	A	B	C	D	E
24	A	B	C	D	E	49	A	B	C	D	E	74	A	B	C	D	E	99	A	B	C	D	E
25	A	B	C	D	E	50	A	B	C	D	E	75	A	B	C	D	E	100	A	B	C	D	E

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

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

9 BOOK ID  
(Copy from back of test book.)

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

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

Quality Assurance Mark

**Chemistry** \*Fill in circle CE only if II is correct explanation of I.

	I	II	CE*		I	II	CE*		
101	T	F	T	F	109	T	F	T	F
102	T	F	T	F	110	T	F	T	F
103	T	F	T	F	111	T	F	T	F
104	T	F	T	F	112	T	F	T	F
105	T	F	T	F	113	T	F	T	F
106	T	F	T	F	114	T	F	T	F
107	T	F	T	F	115	T	F	T	F
108	T	F	T	F					

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**CERTIFICATION STATEMENT** Copy the statement below (do not print) and sign your name as you would an official document.

I hereby agree to the conditions set forth online at [www.collegeboard.com](http://www.collegeboard.com) and/or in the SAT Registration Booklet and certify that I am the person whose name and address appear on this answer sheet.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

By signing below, I agree not to share any specific test questions with anyone after I test by any form of communication, including, but not limited to: email, text messages, or use of the Internet.

Signature \_\_\_\_\_ Date \_\_\_\_\_