WS 1—SAT Overview (Sample Test 1)
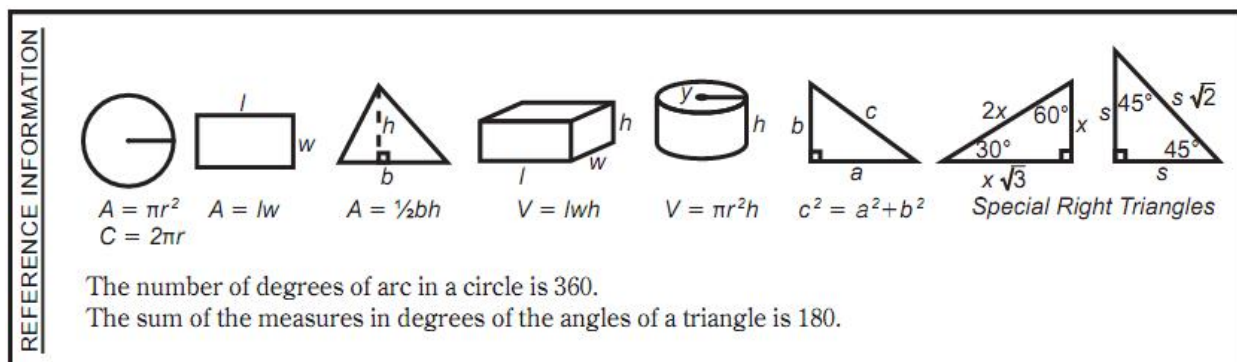
Section 1

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| **Time:** 12 minutes, 10 Questions |
| **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:**
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 tht 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

$A = \pi r^2$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ *Special Right Triangles*
$C = 2\pi r$

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. What is another expression for 8 less than the quotient of x and 3?

    (A) $\dfrac{x-8}{3}$

    (B) $\dfrac{x}{3} - 8$

    (C) $8 - 3x$

    (D) $3x - 8$

    (E) $3(8 - x)$

2. Which of the following is equal to $\dfrac{|x|}{|y|}$ for all real numbers x and y?

    (A) $\dfrac{x}{y}$

    (B) $\dfrac{|x|}{y}$

    (C) $\dfrac{x}{|y|}$

    (D) $\left|\dfrac{x}{y}\right|$

    (E) $-\left|\dfrac{x}{y}\right|$
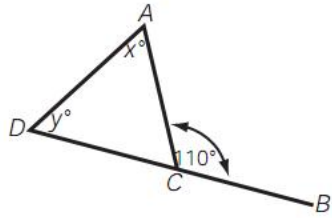
3. In the figure above, $m\angle ACB = 110°$ and $AC = CD$. What is the value of $2y$?
   (A) 45
   (B) 70
   (C) 90
   (D) 110
   (E) 140

4. The average (arithmetic mean) of five numbers is 34. If three of the numbers are 28, 30, and 32, what is the sum of the other two?
   (A) 40
   (B) 50
   (C) 60
   (D) 70
   (E) 80

5. For any positive integer, x, $⊗ = \dfrac{x^2}{3}$ and $\boxed{x} = \dfrac{9}{x}$. What is an expression for $⊗ \times \boxed{x}$?
   (A) $3x$
   (B) x
   (C) 1
   (D) $\dfrac{x^3}{64}$
   (E) $27x^3$

6. Of the following four diagrams below, which diagram describes the dark region as the set of elements that belongs to all of the sets A, B, and C?

(A)

(B)

(C)

(D)

(E)
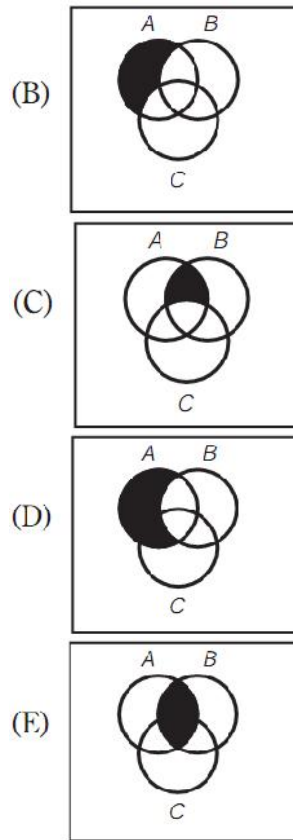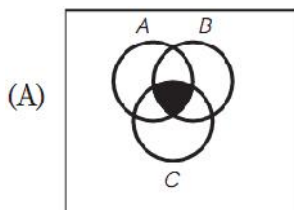
7. At a certain small town, p gallons of gasoline are needed per month for each car in town. At this rate, if there are r cars in town, how long, in months, will q gallons last?
   (A) $\dfrac{pq}{r}$
   (B) $\dfrac{qr}{p}$
   (C) $\dfrac{r}{pq}$
   (D) $\dfrac{q}{pr}$
   (E) pqr

8. If the sum of 5 consecutive positive integers is w, in terms of w, which of the following represents the sum of the next 5 consecutive positive integers?
   (A) $w + 5$
   (B) $5w + 5$
   (C) $5w + 25$
   (D) $w + 25$
   (E) $w^2 + 25$
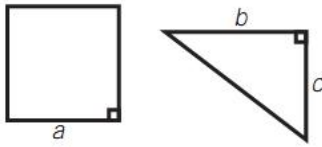
9. If the area of the square is twice the area of the triangle and $bc = 100$, then find a^2.
    (A) 400
    (B) 200
    (C) 100
    (D) 50
    (E) 25

Note: Figure is not drawn to scale.

10. In the figure above, $\overline{AB}$ and $\overline{CD}$ are diameters of the circle whose center is O. If the radius of the circle is 2 inches and the sume of the lengths of arcs $\overarc{AD}$ and $\overarc{BC}$ is 3π inches, then $y =$
    (A) 45
    (B) 60
    (C) 75
    (D) 90
    (E) 120

Section 2

Time: 12 Minutes, 10 Questions
Directions: This section contains two types of questions. You have 12 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:

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11. If $x + by = 3x + y = 5$ and $y = 2$, then $b =$
    (A) 0
    (B) 1
    (C) 2
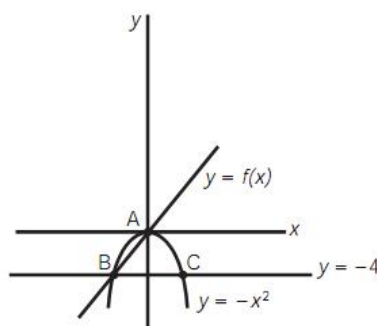   (D) 3
    (E) 4

12. What fraction of 1 week is 24 min?
    (A) $\dfrac{1}{60}$

    (B) $\dfrac{1}{168}$

    (C) $\dfrac{1}{420}$

    (D) $\dfrac{1}{1440}$

    (E) $\dfrac{1}{10080}$

13. Johnny spent $\dfrac{2}{5}$ of his allowance on candy and $\dfrac{5}{6}$ of the remainder on ice cream. IF his allowance is $30, how much money did he have left after buying the candy and ice cream?
    (A) $1
    (B) $2
    (C) $3
    (D) $5
    (E) $10

14. The x-coordinate of point B is
    (A) –2
    (B) –3
    (C) –4
    (D) –5
    (E) –6

Directions: For Student-Produced Response questions 15-20, use the grids at the bottom of the answer sheet page on which you have answered questions 11-14.

Each of the remaining 6 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.

- Mark no more than one oval in any column.

- Because the answer sheet will be machine-scored, **you will receive credit only if the ovals 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 ovals 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 $2\frac{1}{2}$ must be gridded as 2.5 or 5/2. (If [2 / 1 / 2] is gridded, it will be interpreted as $\frac{21}{2}$, not $2\frac{1}{2}$.)

- *Decimal Accuracy:* If you obtain a decimal answer, **enter the most accurate value the grid will accommodate.** For example, if you obtain an answer such as 0.6666 ... , you should record the result as .666 or .667. **Less accurate values such as .66 or .67 are not acceptable.**

Acceptable ways to grid $\frac{2}{3}$ = .6666 ...

15. If $\dfrac{5}{8}$ of x is 40, then find the value of $\dfrac{3}{8}$ of x.

16. Dick spent $7 in order to buy baseballs and tennis balls. If baseballs are $0.70 each and tennis balls are $0.60 each, what is the greates possible number of tennis balls that Dick could have bought?

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ABA	BBB	CBA	BBA
ACC	CBC	CCC	ACA
BAC	ABC	BCA	CAB
CBB	BCA	AAB	ACC

17. In the triple arrangement of letters above, a triple has a value of 1 if exactly 2 of the letters in the triple are the same. Any other combination has a value of 0. The value of the entire arrangement is the sum of the values of each of the triples. What is the value of the above arrangement?
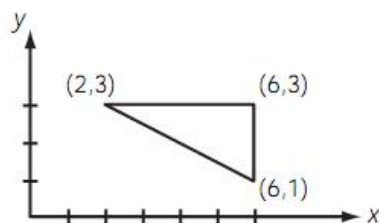
18. In the figure above, what is the area of the triangle?
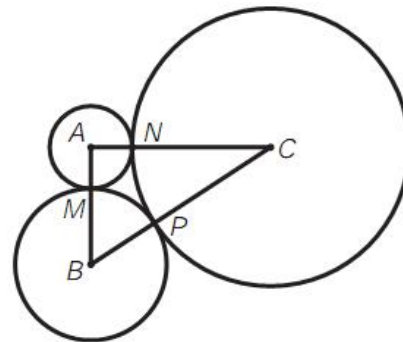
19. The circles having their centers at *A, B,* and *C* have radii of 1, 2, and 3, respectively. Th circles are tangent at points *M, N,* and *P* as shown above. What is the product of the lengths of the sides of the triangle?
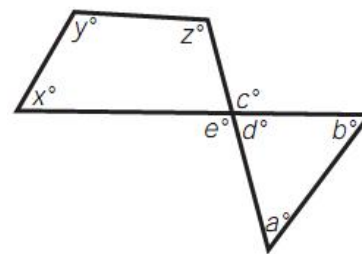
20. Five line segments intersect ot form the figure above. What is the value of $x + y + z$ if $c = 100$?

Answer Sheet

Directions: Use the bubbles below to answer questions 1-14. Use the grid-ins below to answer questions 15-20.

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

15. 16. 17. 18. 19. 20.