3 3

Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

Turn to Section 3 of your answer sheet to answer the questions in this section.

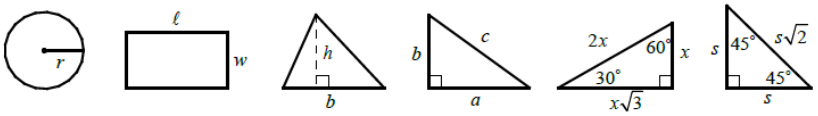
DIRECTIONS

For questions **1-15**, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. **For questions 16-20**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

1. The use of calculator **is not permitted**.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE



$A = \pi r^2$
$C = 2\pi r$

$A = \ell w$

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

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

Special Right Triangles

$V = \ell wh$

$V = \pi r^2 h$

$V = \frac{4}{3}\pi r^3$

$V = \frac{1}{3}\pi r^2 h$

$V = \frac{1}{3}\ell wh$

The number of degrees of arc in a circle is 360.
The number of radians of arc in a circle is 2π.
The sum of the measures in degrees of the angles of a triangle is 180.

CONTINUE

SAT Multiple Choice

SAT Practice Test 1

1

If $f(x)=\frac{1}{2}x-1$, what is $f(-2x+1)$ equal to?

A) $-x-\frac{1}{2}$

B) $-x+\frac{1}{2}$

C) $x-\frac{1}{2}$

D) $x+\frac{1}{2}$

2

If $x=1-\frac{a}{b}$, which of the following is equivalent to $\frac{1}{x}$?

A) $\frac{b}{1+a}$

B) $\frac{b}{1-a}$

C) $\frac{b-1}{a}$

D) $\frac{b}{b-a}$

3

$$\frac{1}{2}(16-4x)=nx+8+3x$$

If the linear equation above is an identity, what is the value of n?

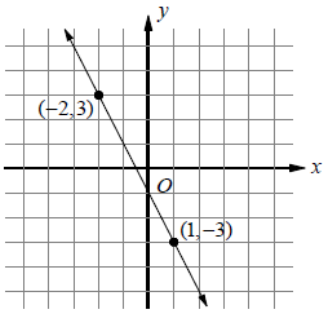
A) -5

B) -3

C) -1

D) 3

4



Which of the following equations represents a line that is parallel to the line shown above and contains the point $(\frac{1}{2},3)$?

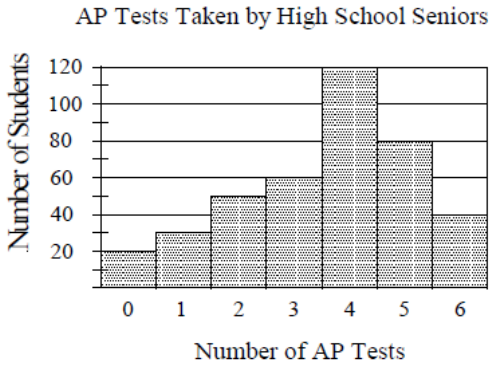
A) $y=x+\frac{5}{2}$

B) $y=-x+\frac{7}{2}$

C) $y=-2x+4$

D) $y=-2x+6$

Questions 5 and 6 refer to the following information.



The graph above depicts a survey of 400 senior students in a high school who took the AP tests last May. The number of AP tests taken by each student ranges from zero to six.

5

Which of the following is NOT true of the survey results?

A) The mode of the number of AP tests taken by each student was 4.

B) The average (arithmetic mean) number of AP tests taken by the senior students was greater than the median number of AP tests taken by the senior students.

C) The average (arithmetic mean) number of AP tests taken by the senior students was equal to the median number of AP tests taken by the senior students.

D) The average (arithmetic mean) number of AP tests taken by the senior students was less than the median number of AP tests taken by the senior students.

6

By what percent is the number of senior students who took 4 AP tests greater than the number of senior students who took 3 AP tests?

A) 50%

B) 75%

C) 100%

D) 200%

7

$$x + y < a$$
$$x - y > b$$

In the xy-plane, if $(0,1)$ is the solution to the system of inequalities above, which of the following relationships between a and b must be true?

A) $|a| < |b|$

B) $|a| > |b|$

C) $a - b < 2$

D) $a - b > 2$

8

Which of the following complex numbers is equivalent to $\frac{(1+i)^2}{1-i}$? (Note: $i = \sqrt{-1}$)

A) $-1-i$

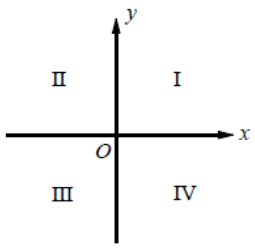
B) $-1+i$

C) $1-i$

D) $1+i$

SAT Practice Test 1

9



If the system of inequalities $2 - y < 2x$ and $-x \leq 4 - y$ is graphed in the xy-plane above, which quadrant contains no solutions to the system?

A) Quadrant II

B) Quadrant III

C) Quadrant IV

D) There are solutions in all four quadrants.

10

A certain company produces d diskettes every m minutes. Which of the following is the number of diskettes produced in h hours, in terms of d, m, and h?

A) $\frac{60dh}{m}$

B) $\frac{60dm}{h}$

C) $\frac{60mh}{d}$

D) $\frac{dh}{60m}$

11

$$y = 2x^2 - 11x - 6$$

The equation above represents a parabola in the xy-plane. Which of the following equivalent forms of the equation displays the x-intercepts of the parabola as constants or coefficients?

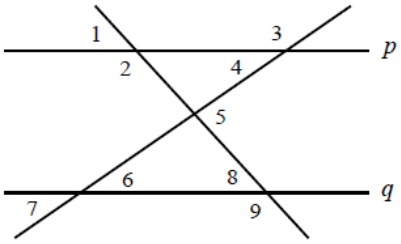
A) $y = (2x - 3)(x + 2)$

B) $y = (2x + 1)(x - 6)$

C) $y = 2(x - \frac{11}{4})^2 - \frac{169}{8}$

D) $y = 2(x - \frac{11}{2})^2 - \frac{133}{4}$

12



In the figure above, line p is parallel to line q. Which of the following must be true?

I. $m\angle 2 = m\angle 9$

II. $m\angle 2 + m\angle 4 = 180$

III. $m\angle 4 + m\angle 8 = m\angle 5$

A) I only

B) I and II only

C) I and III only

D) I, II, and III

SAT Multiple Choice

13

At a coffee shop, a customer bought 10 bags of Arabian Mocha and Kona coffee. A bag of Arabian Mocha costs \$18 and a bag of Kona coffee costs \$28. If x is the number of bags of Arabian Mocha and the customer paid d dollars for the Arabian Mocha and Kona coffee, which of the following represents x in terms of d?

A) $x = 28 - 0.1d$

B) $x = 28 + 0.1d$

C) $x = 18 - 0.1d$

D) $x = 18 + 0.1d$

14

If p, q, r, and s are four different positive numbers such that $p = \frac{r}{s-r}$ and $q = \frac{r}{s}$, what is q in terms of s?

A) $1 + \frac{1}{p}$

B) $1 - \frac{1}{p}$

C) $\frac{1}{1+p}$

D) $\frac{p}{1+p}$

15

The population of a certain town doubles every 24 years. If the population of the town was 140,000 at the beginning of 2016, which of the following equations represents the population, P, t years after 2016?

A) $P = 140,000 + 24t$

B) $P = 140,000 + (24)^t$

C) $P = 140,000(2)^{\frac{t}{24}}$

D) $P = 140,000 \cdot \frac{(2)^t}{24}$

SAT Multiple Choice

Answers

SAT Practice Test 1 – No Calculator

1. A	2. D	3. A	4. C	5. B
6. C	7. D	8. B	9. C	10. A
11. B	12. C	13. A	14. D	15. C