مقدمه

در فرمت جدید برگزاری آزمون دیجیتال SAT دو بخش ریاضی ۲۲ سوالی داریم که در تمام قسمتهای آن ماشین حساب مجاز است.

این نمونه سوالات میتواند هم جهت اشنایی داوطلب مورد استفاده قرار گیرد و هم به عنوان آزمون تعیین سطح و یا سوالات شبیه سازی (برای تمرین بیشتر)

در صفحه اخر پاسخ کلیدی آورده شده است. لذا بهتر است داوطلب ابتدا سوالات را حل کند و سپس به کمک پاسخ کلیدی، سطح خود را سنجش کند.

این سوالات بسیار مشابه با آزمون ریاضی SAT طراحی شده است.

طراح این سوالات اقای دکتر عماد میرابی است.

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مکاتبه کنید.

به جهت آمادگی داوطلبان، دوره آموزشی افلاین ریاضی SAT آماده شده است که برای تهیه انها میتوانید از لینک زیر اقدام کنید.

https://mirabiedu.com/product-category/entrance-exams/sat

1. What is the solution of this equation? $2(x+1) = 2x + 3$

a) -2
b) 1
c) Has no solution
d) Has infinite solutions

2. Emad needs some pens and pencils for his school. He bought x pens & y pencils and paid 7$ totally.

$$3x + 2y = 7$$

In equation above, what is the best interpretation for number 2?

a) the cost of each pen
b) the cost of each pencil
c) total number of pens and pencils he bought
d) total number of pens he bought

3. Equation of a line in xy-plane is given as $2x + 3y = 6$

What is the x-intercept?

a) 3
b) 2
c) 6
d) $\frac{1}{2}$

4. Mirabi institute offers two offline courses physical sciences and geometry. The number of students taking physical sciences is 5 more than the number of students taking geometry course. If 40 students are taking physical sciences, for which of the following equations does n represent the number of students taking geometry course?

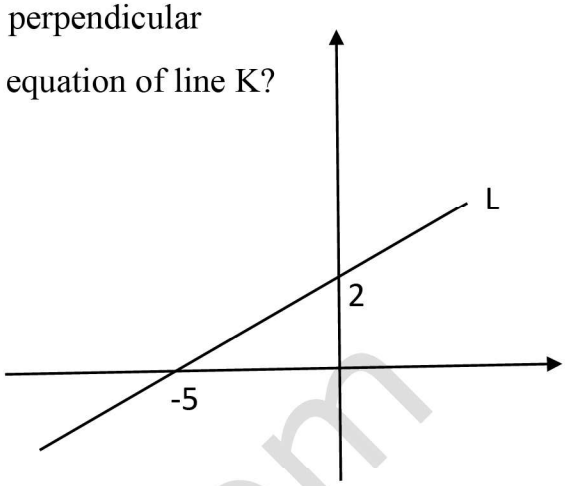
a) $40 = n + 5$

b) $n - 5 = 40$

c) $5n = 40$

d) $\frac{1}{5}n = 40$

5. Line L is shown in the x-y plane. If line K is perpendicular to line L, which of the following could e equation of line K?



a) $-2x + 5y = 10$
b) $2x + 5y = 10$
c) $5x + 2y = 10$
d) $5x - 2y = 10$

6. Population of town A has been 30000 in 1980.

If the population increased 10% each year after 1980, which of the following models the population of town A, t years after 1980?

a) $30000(1 + 10t)$
b) $30000(1.1)^t$
c) $30000(1 + 0.1\ t)$
d) $30000(0.1)^t$

7. In the given equation, m is a constant.

$$(m^2 - 3m + 2)x = m^2 - 1$$

if the equation has no solution, what is the value of m ?

a) 1
b) 2
c) -1
d) -2

8. How the graph of $y = -f(x)$ is related to graph of the function $y = f(x)$?

a) reflected about y-axis

b) reflected about x-axis

c) parts below x-axis will be reflected up

d) parts above x-axis will be reflected down

9. Volume of a cube is 8 cubic centimeter. What is the surface area (total surface) of this cube in square centimeter?

a) 16

b) 12

c) 24

d) 48

10. Which of the following is equivalent to the given expression

$$\frac{2}{x-1}+\frac{3}{2x-2}$$

a) $\frac{2.5}{x-1}$

b) $\frac{7}{2x-2}$

c) $\frac{5}{2x-2}$

d) $\frac{7x-1}{2(x-1)^2}$

11. if $a>0\,, b<0$ $then\ \sqrt{a^2}-\sqrt{b^2}$ is equivalent to:

A) $a-b$

B) $a+b$

C) $2\sqrt{a}-2\sqrt{b}$

D) $|a|+|b|$

12. Which of the following is equivalent to: $9x\left(\frac{x}{3}+2\right)^2$

A) x^3+36x

B) $9x^3+12x^2+36x$

C) $x^3+12x^2+36\,x$

D) $x^3+12x+36$

13. For the function $f(x)=5(2)^{x+2}$, which of the following equivalent form shows the y-coordinate of the y-intercept of the graph of $y=f(x)$ in the xy plane as a constant or coefficient?

A) $10(2)^{x+1}$

B) $20(2)^x$

C) $\frac{5}{2}(2)^{x+3}$

D) $40(2)^{x-1}$

14. What is $\frac{1+i}{1-i}$ =?

a) $-\frac{1}{2}$

b) $\frac{1}{2}$

c) $1+i$

d) i

15. A(0,1), B(3,4) and C(0,7) are three point in x-y plane. What is the angle $\angle BAC$ in degree?

a) 45
b) 30
c) 90
d) 60

16. The median of the following 7 numbers is 4. Which of the following could be the value of t?

2 , 4, 8, 1, 11, t , 3

a) 3
b) 1
c) 2
d) 9

17. One source recommends that an active person should consume one gram of protein per day for every 2 to 3 pounds of body weight. Based on this source, which of the following inequalities gives the number of grams of protein, p that an active person weighing 198 pounds should consume per day?

a) $66 < p < 99$
b) $p > 99 \ \ or \ \ p < 66$
c) $396 < p < 594$
d) $p > 594 \ \ or \ \ p < 396$

18. if $\sqrt{x-2} = 6$, what is the value of x ?

19. Triangle ABC is similar to triangle PQR. If the area of ΔABC is 125% greater than area of ΔPQR , what is the ratio of similitude?

20. The function h is defined by $h(x) = ax + b$ where a , b are constants. If $h(3) = 14$, $h(7) = 22$ what is the value of b ?

21. If (x, y) is the solution of the following system of equations, what is the value of x ?

$$\begin{cases} 8x + 4y = 7 \\ 4x - 16y = -1 \end{cases}$$

22. What is the product of the two solutions to the following quadratic equation? $4x(x+1) = 11x - 3$

1. C	12. C
2. B	13. B
3. A	14. D
4. A	15. A
5. C	16. D
6. B	17. A
7. B	18. 38
8. B	19. 1.5 or 3/2
9. C	20. 8
10. B	21. ¾ or 0.75
11. B	22. ¾ or 0.75