CollegeBoard

MAY 6TH DIGITAL SAT

2ND VERSION

HARDEST MATH QUESTION
COMBILED/RECYCLED BY: MOAZ OMAR



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NEED SAT MATH TUTOR? CONTACT ME :)

My name is Moaz Omar, and I am a SAT Math tutor.

+201022101868

https://t.me/C_rac_kit

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https://t.me/mathprepsat

Acknowledgement

- This PDF contains questions with ideas similar to these included in the May 6th Digital SAT Trial.
- While the questions address the same ideas and topics, the values, characters, layout, and wording of the questions in this pdf file differ from the values in the Official Test.
- Please keep in mind that there were several versions of the test; therefore, not all hard questions are included in this pdf file.
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1

Shape	Volume
Cylinder A	300π
Cylinder B	2700π

Cylinder A and Cylinder B are similar right cylinders. The radius of Cylinder A is 4, and its surface area is dπ . The surface area of Cylinder B is tπ. What is the value of t-d? (Note: surface area of a cylinder is 2πrh+2πr^2)

2

How many square meters per minute is equivalent to a rate of 130 square centimeters per hour? (Note: 1 meter = 100 centimeter)

3

The function f(x) = |x|/s-10 where s<0. What is the sum of f(15s) and f(3s) ?

4

Which of the following has x+2b as a factor where b is a positive integer?

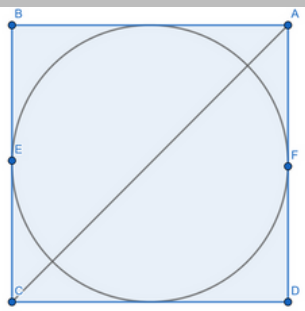
A. 3x^2 + 7x + 14b

B. 3x^2 + 28x + 14b

C. 3x^2 + 42x + 14b

D. 3x^2 +49x +14b

5



The circle shown above is inscribed inside the square ABCD. Segment AC is the diagonal of the square, and its length is 10 cm. What is the radius of the circle in cm?

A) 5√2

B) 5

C) 10

D) 5/√2

6

A rectangular fence covers an area of 85 plots. Each plot has an area of C. The width of a plot is larger than its length by 3 times, and the length is x√c. What is the positive value of x?

7

Which of the following has x+2b as a factor where b is a positive integer?

A. 3x^2 + 7x + 14b

B. 3x^2 + 28x + 14b

C. 3x^2 + 42x + 14b

D. 3x^2 +49x +14b

8

y= x-c

y= -4(x-10)^2

The system above has more than 1 solution. What is the minimum value of C?

A) 10

B) 159/16

C) 161/12

D) - 159/16

9

The quadratic function ax^2 + 100x + c has at least one real solution. What is the greatest possible value of ac?

10

Which of the following choices has the least Standard deviation?

A)

Value	Frequency
5	1
10	5
15	3
20	5
25	1

B)

Value	Frequency
5	0
10	10
15	15
20	10
25	0

C)

Value	Frequency
5	100
10	50
15	25
20	0
25	25

D)

Value	Frequency
5	55
10	65
15	75
20	80
25	85

11

A circle on the X-Y Plane has a center of (-2,-5). Line K is tangent to the circle on the point (-4,1). What is the slope of line K?

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12

$$F(x) = (x-2)(X-5)(x+9)$$

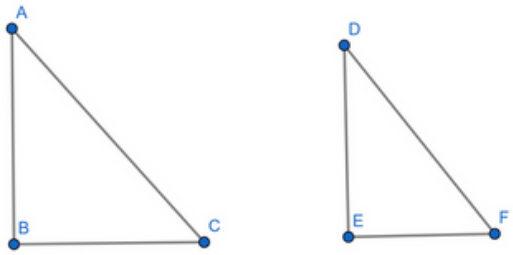
The above function f(x) is the result of translating g(X) up 5 units. What is the y-Intercept of g(x)?

13

$$f(x) = 75(0.3)^x$$

The function f(x) is a decreasing exponential function. By what percent is f(n) less than f(n-1)?

14



The 2 right triangles ABC and DEF shown above are similar, where A corresponds to D and B corresponds to E. If tan(A) = 15/25, what is tan(F)?

A) 25/15

B) 15/25

C) 5/34

D) 1

15

The quadratic function f(x) gives the product of X, and the sum of x and 84. What is the quadratic function f(x)?

A) $X^2 + 84X + 84$

B) $X^2 + 84X$

C) $84X^2 + X + 84$

D) X^2

16

How many X-intercepts does the function $f(x) = x(8x+3)^4(2x+1)^3$ **has?**

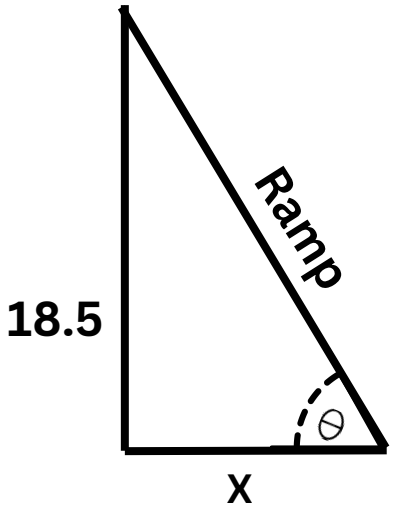
A) 2

B) 7

C) 1

D) 3

17



In the Right triangle above $\tan(\theta) \leq 1/10$. **The height of the triangle is 18.5 meters. What is the least possible value of X?**

18

A Circle with center (-10,4) has a radius equal to 16. The equation $x^2 + y^2 + ax + by + c = 0$ represents the circle. What is the value of C?

19

The function $f(x) = 1/3(x+5)^2 - 8$. What is the X value where f(x) reaches its minimum?

A) 5

B) 8

C) -5

D) -8

20

$$\sqrt{(x-70)^2} = -6x$$

If X > 0, what is the value of X?

A) -14

B) -10

C) 10

D) 14

1	1456
2	.0003
3	-38
4	D
5	A
6	1/7
7	D
8	B
9	2500
10	B
11	1/3
12	2500
13	0.7
14	A
15	B
16	D
17	185
18	140
19	C
20	A



Answer Key



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