

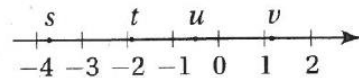
# SAT Mathematics REVIEW 3-16-19 Part 2

## Question 1

If  $m^3 = \sqrt{\sqrt{n}}$ , where  $n > 0$ , what is the value of  $m$  in terms of  $n$ ?

- A)  $n^{\frac{1}{12}}$
- B)  $n^{\frac{1}{6}}$
- C)  $n^{\frac{7}{12}}$
- D)  $n^{\frac{3}{4}}$

## Question 3



If  $s$ ,  $t$ ,  $u$ , and  $v$  are the coordinates of the indicated points on the number line above, which of the following is greatest?

- A)  $|s - v|$
- B)  $|s - t|$
- C)  $|s + v|$
- D)  $|u + v|$

## Question 2

One bag of grass seed can cover 5,000 square feet of new lawn. If each bag costs  $p$  dollars, which of the following expressions gives the cost, in dollars, to cover a new rectangular lawn that measures  $a$  feet by  $b$  feet?

- A)  $\frac{5,000p}{ab}$
- B)  $\frac{abp}{5,000}$
- C)  $\frac{5,000ab}{p}$
- D)  $5,000abp$

## Question 4

If  $f(x) = 3x + n$ , where  $n$  is a constant, and  $f(2) = 0$ , then  $f(n) =$

- A)  $-24$
- B)  $-18$
- C)  $-12$
- D)  $12$

## Question 5

If  $a$  and  $b$  are the coordinates of two points on the number line, then which of the following is equivalent to the statement that the absolute distance from  $a$  to  $b$  is greater than the absolute distance from  $-2$  to  $6$ ?

- A)  $|a| > -2$  and  $|b| > 6$
- B)  $|a - b| > -8$
- C)  $|a + 2| > |b - 6|$
- D)  $|a - b| > 8$

## Question 7

If  $f(x) = (x^2)^{-2b}$  and  $f(3) = 3$ , what is the value of  $b$ ?

- A)  $-\frac{1}{2}$
- B)  $-\frac{1}{4}$
- C)  $\frac{1}{4}$
- D)  $\frac{1}{2}$

## Question 6

If  $i = \sqrt{-1}$ , which of the following is equivalent to  $(2 - i)(3 - 2i)$ ?

- A)  $8 - 7i$
- B)  $6 + 2i$
- C)  $6 - 6i$
- D)  $4 - 7i$

## Question 8

The functions  $f$ ,  $g$ , and  $h$  are defined by the equations  $f(x) = x^2$ ,  $g(x) = x$ , and  $h(x) = \sqrt{x}$ . Which of the following must be true?

- A)  $h\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right)$
- B)  $h\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right)$
- C)  $g\left(\frac{1}{2}\right) < h\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right)$
- D)  $f\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right) < h\left(\frac{1}{2}\right)$

## Question 9

If the function  $f$  is defined by the equation  $f(x) = k(x + 6)(x - 1)$ , where  $k > 5$ , then which of the following is equivalent to  $f(7)$ ?

- A)  $f(-78)$
- B)  $f(-12)$
- C)  $f(-2)$
- D)  $f(78)$

## Question 11

The value of  $y$  varies with  $x$  according to the equation  $y = kx^2$ , where  $k > 0$ . When the value of  $x$  increases from 3 to 12, which of the following best describes the behavior of  $y$ ?

- A) It increases by 81.
- B) It increases by 135.
- C) It is multiplied by 4.
- D) It is multiplied by 16.

## Question 10

Let function  $f(x)$  be defined by the equation  $f(x) = x^2 - 1$ . If  $b$  is a positive real number, then  $f\left(\frac{1}{b}\right) =$

- A)  $\frac{(b-1)(b+1)}{b^2}$
- B)  $\frac{(1-b)(1+b)}{b^2}$
- C)  $\frac{b^2-1}{b}$
- D)  $\frac{b-1}{b^2}$

## Question 12

$$3x^2 = 4x + c$$

In the equation above,  $c$  is a constant. If  $x = -1$  is a solution of this equation, what other value of  $x$  satisfies the equation?

- A)  $\frac{1}{7}$
- B)  $\frac{4}{3}$
- C)  $\frac{7}{3}$
- D) 7

This is the end of the QUIZZ Supported section

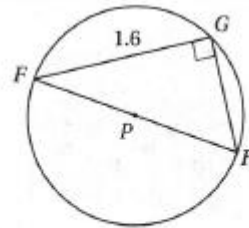
# Question 13

What is one possible solution to the equation

$$\frac{6}{x+1} - \frac{3}{x-1} = \frac{1}{4}$$

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

# Question 15



In the figure above, triangle  $FGH$  is inscribed in the circle with center  $P$ . If the area of the circle is  $\pi$ , what is the area of triangle  $FGH$ ?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

# Question 14

What is the smallest positive integer value of  $x$

such that  $\frac{6}{x} + \frac{1}{2x}$  is less than 1?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	0	0	0
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2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

# Question 16

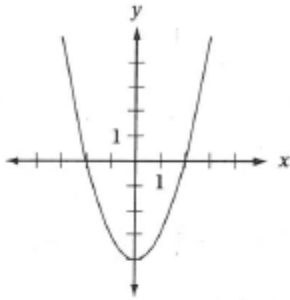
If  $\cos(x - \pi) = 0.4$ , what is the value of  $\sin^2 x$ ?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

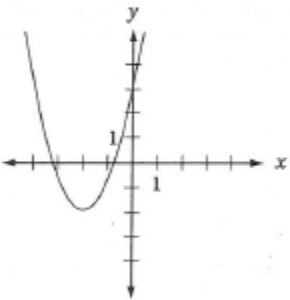
# Question 17

If  $m > 1$ , which of the following could be the graph of  $y = -(x + m)^2 + m$  in the  $xy$ -plane?

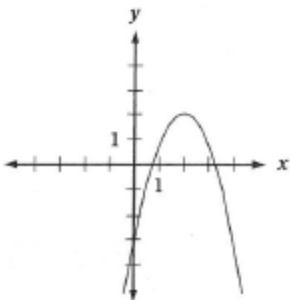
A)



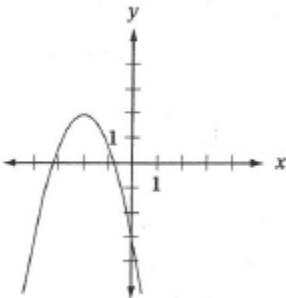
B)



C)



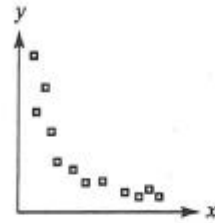
D)



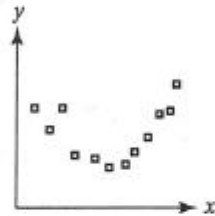
# Question 18

Which of the following scatterplots provides the strongest evidence in support of the hypothesis that  $y$  varies inversely as the square of  $x$ ?

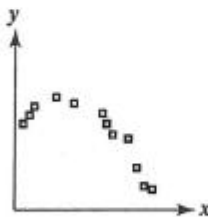
A)



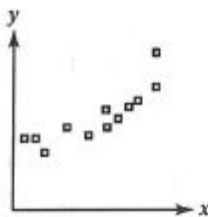
B)



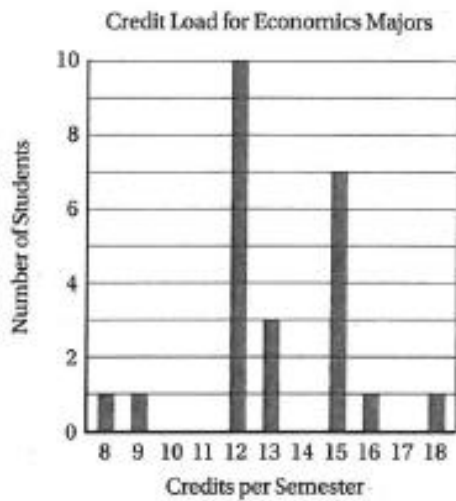
C)



D)



# USE THIS TABLE FOR QUESTIONS 19 and 20



## Question 19

A university surveyed 24 economics majors and asked them how many credits they received the previous semester. The results are represented in the graph above. What percentage of these students received 15 or more credits that semester?

- A) 29%
- B)  $33\frac{1}{3}\%$
- C)  $37\frac{1}{2}\%$
- D) 54%

## Question 20

What is the median number of credits these students received the previous semester?

- A) 10.5
- B) 11.5
- C) 12
- D) 12.5