



SAT2-MATHEMATICS^{Q&As}

SAT Section 2: Mathematics





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**QUESTION 1**

What is the tenth term of the pattern below?

$$\frac{2}{3}, \frac{4}{9}, \frac{8}{27}, \frac{16}{81}, \dots$$

A. $\frac{20}{30}$

B. $\frac{2^{10}}{3}$

C. $\frac{2}{3^{10}}$

D. $\left(\frac{2}{3}\right)^2$

E. $\left(\frac{2}{3}\right)^{10}$

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: E

$$\left(\frac{2}{3}\right)^{10}$$

Each term in the pattern is equal to the fraction $\frac{2}{3}$ raised to an exponent that is equal to the position of the term in the sequence. The first term in the sequence is equal to ,



$$\left(\frac{2}{3}\right)^2$$

the second term is equal to ,

$$\left(\frac{2}{3}\right)^{10}$$

and so on. Therefore, the tenth term in the sequence will be equal to

QUESTION 2

A music store offers customized guitars. A buyer has four choices for the neck of the guitar, two choices for the body of the guitar, and six choices for the color of the guitar. The music store offers

- A. 12 different guitars.
- B. 16 different guitars.
- C. 24 different guitars.
- D. 36 different guitars.
- E. 48 different guitars.

Correct Answer: E

To find the total number of different guitars that are offered, multiply the number of neck choices by the number of body choices by the number of color choices: $(4)(2)(6) = 48$ different guitars.

QUESTION 3

The average of five consecutive odd integers is -21 . What is the least of these integers?

- A. -17
- B. -19
- C. -21
- D. -23
- E. -25

Correct Answer: E

Explanation:



If the average of five consecutive odd integers is -21 , then the third integer must be -21 . The two larger integers are -19 and -17 and the two lesser integers are -23 and -25 . -25 is the least of the five integers.

Remember, the more a number is negative, the less is its value.

QUESTION 4

The expression $4x^2 - 2x + 3$ is equal to 3 when $x = 0$ and when $x =$

A. $\frac{-1}{2}$

B. $\frac{-1}{4}$

C. $\frac{1}{8}$

D. $\frac{1}{4}$

E. $\frac{1}{2}$

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: E

Set the expression $4x^2 - 2x + 3$ equal to 3 and solve for x :



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

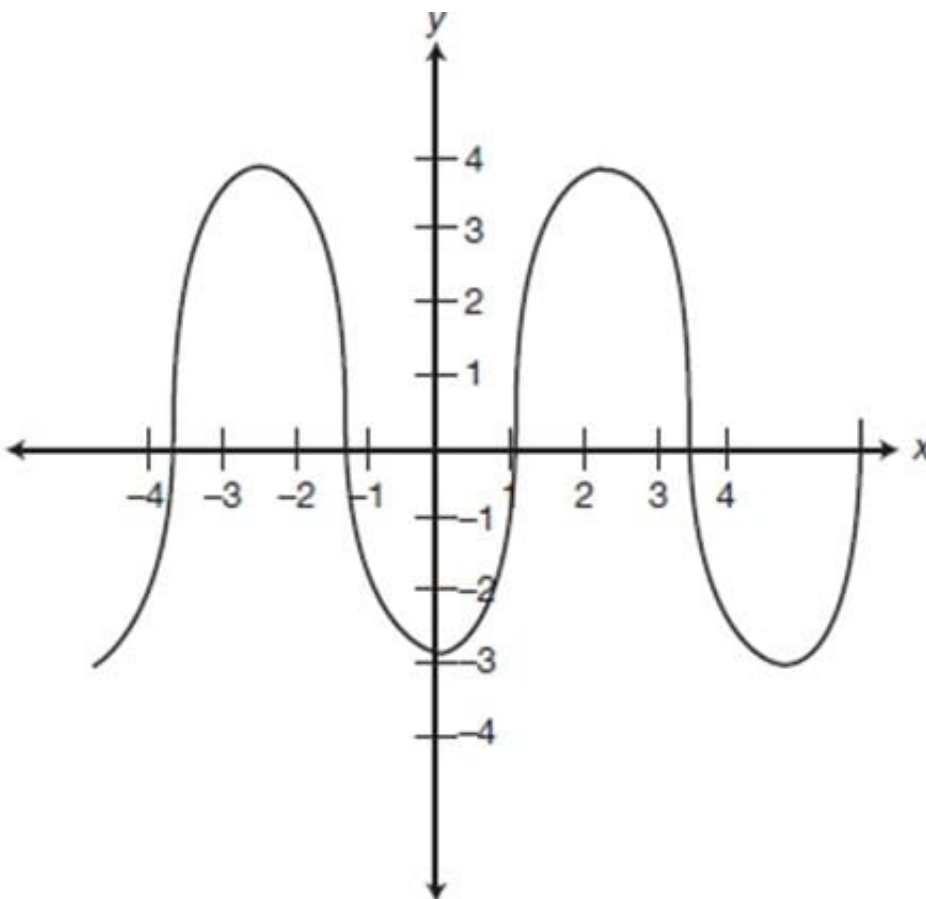
$$4x^2 - 2x + 3 - 3 = 3 - 3$$

$$4x^2 - 2x = 0$$

$$4x \left(x - \frac{1}{2} \right) = 0$$

$$x = 0, \quad x = \frac{1}{2}$$

QUESTION 5



The graph of $f(x)$ is shown above. How many values can be found for $f(3)$?

A. 0



- B. 1
- C. 2
- D. 4
- E. cannot be determined

Correct Answer: B

Explanation:

Be careful — the question asks you for the number of values off (3) not $f(x)=3$. In other words, how many y values can be generated when $x=3$? If the line $x=3$ is drawn on the graph, it passes through only one point. There is only one value for $f(x)$

QUESTION 6

SIMULATION

A bus holds 68 people. If there must be one adult for every four children on the bus, how many children can fit on the bus?

- A. 52

Correct Answer: A

There is one adult for every four children on the bus. Divide the size of the bus, 68, by

$$5: \frac{68}{5} = 13.6$$

There can be no more than 13 groups of one adult, four children. Therefore, there can be no more than $(13 \text{ groups})(4 \text{ children in a group}) = 52$ children on the bus.

QUESTION 7

SIMULATION There are seven students on the trivia team. Mr. Randall must choose four students to participate in the trivia challenge. How many different groups of four students can Mr. Randall form?

- A. 35

Correct Answer: A

The order of the four students chosen does not matter. This is a "seven-choose-four" combination problem -- be sure to divide to avoid counting duplicates:



$$\frac{(7)(6)(5)(4)}{(4)(3)(2)(1)} = \frac{840}{24} = 35$$

There are 35 different groups of four students that Mr. Randall could form.

QUESTION 8

$$a < \frac{43}{3x} < b, \text{ and } a=4 \text{ and } b=8,$$

If which of the following could be true?

- A. $x < a$
- B. $x > b$
- C. $a < x < b$
- D. $4 < x < 8$
- E. none of the above

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: A

If $a = 4$, x could be less than a . For example, x could be

$$3: 4 < \frac{43}{3(3)} < 8, 4 < \frac{43}{9} < 8, 4 < 4\frac{7}{9} < 8.$$

Although x