GRE Quant School

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KMF Math Sprint Practice - Section 23 Hard

Question: 1

Last year and this year, there were both men and women in a certain choir. This year there are x fewer men and x fewer women in the choir than there were last year, where x>0, and there are fewer men than women in the choir.

Quantity A	**Quantity B**
The percent decrease from last year to this year in the number of men in the choir	The percent decrease from last year to this year in the number of women in the choir

- Quantity A is greater.
- Quantity B is greater.
- The two quantities are equal.
- The relationship cannot be determined from the information given.

Question: 2

Quantity A	**Quantity B**
The standard deviation of the numbers 45, 64, 83, and 53	The standard deviation of the numbers 55, 81, 47, and 62

- Quantity A is greater.
- Quantity B is greater.
- The two quantities are equal.
- The relationship cannot be determined from the information given.

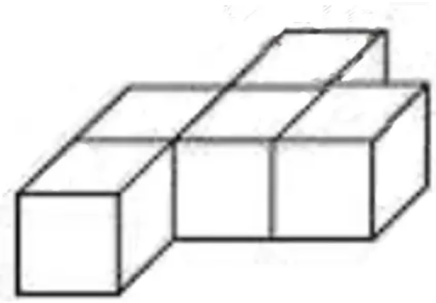
Question: 3

s=-t

Quantity A	Quantity B
$-s^3$	ts^2

- ⬭ Quantity A is greater.
- ⬭ Quantity B is greater.
- ⬭ The two quantities are equal.
- ⬭ The relationship cannot be determined from the information given.

Question: 4



The solid shown consists of five cubes, each with a volume of 27, that are joined so that four pairs of faces coincide.

Quantity A	Quantity B
The surface area of the solid	198

- ⬭ Quantity A is greater.
- ⬭ Quantity B is greater.
- ⬭ The two quantities are equal.
- ⬭ The relationship cannot be determined from the information given.

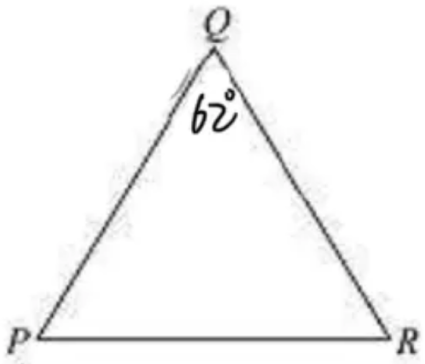
Question: 5

For all numbers x, the function h(x) is defined as 1 more than the greatest integer less than or equal to x.

Quantity A	**Quantity B**
h(1.5)	h(1.75)

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 6



△PQR is an isosceles triangle.

Quantity A	**Quantity B**
The measure of angle P	The measure of angle R

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 7

$$\sqrt{x^2}=9$$

Quantity A	Quantity B
2^x	2^{-x}

- Quantity A is greater.
- Quantity B is greater.
- The two quantities are equal.
- The relationship cannot be determined from the information given.

Question: 8

A total of $24,000 was invested for one month in a new money market account that paid simple annual interest at the rate of r percent. If the investment earned $180 in interest for the month, what is the value of r?

- 7.5
- 8.0
- 8.5
- 9.0
- 10.0

Question: 9

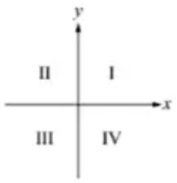
A pianist agreed to perform one concert at a fee $12\frac{1}{2}$ percent less than her usual fee and a second concert at a fee 20 percent greater than the first fee. The fee for the second concert was what percent greater than her usual fee?

- 5%
- 7.5%
- 15%
- 16.25%
- 32.5%

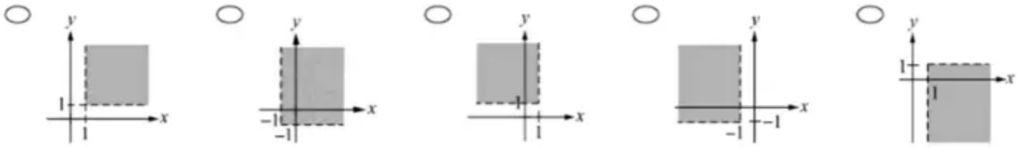
Question: 10

A set consists of all three-digit positive integers with the following properties. Each integer is of the form JKL, where J, K, and L are digits; all the digits are nonzero; and the two-digit integers JK and KL are each divisible by 9. HOW many integers are in the set?

Question: 11



Which of the following shaded regions represents the set of all points (a,b) in the xy-plane above such that (a+1, b+1) is in quadrant 1? (note that a point lies on axis is not in any quadrant)



- A
- B
- C
- D
- E

Question: 12

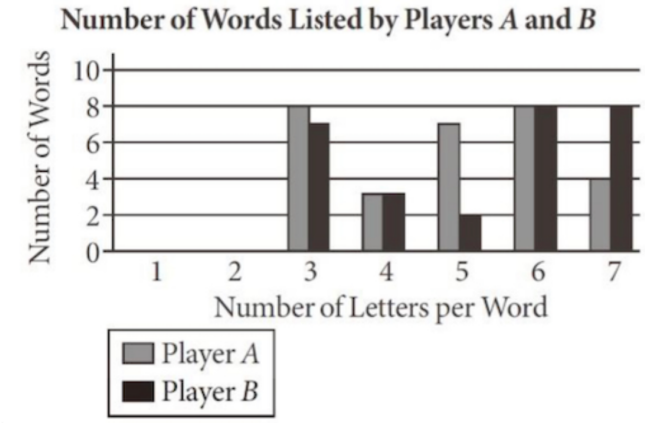
A certain list has 5 entries and each entries is an integer between 55 and 70, inclusive. The median of the 5 entries is 60. If m is the average (arithmetic mean) of the 5 entries, which of the following must be true?

- $54 \leq m \leq 60$
- $55 \leq m \leq 61$
- $56 \leq m \leq 62$
- $57 \leq m \leq 63$
- $58 \leq m \leq 64$

Question: 13

List L consists of 11 different positive numbers. The sum of the 6 smallest numbers in L is 35, and the sum of the 6 greatest numbers in L is 125. If the sum of all the numbers in L is 142, what is the median of the numbers in L?

Question: 14

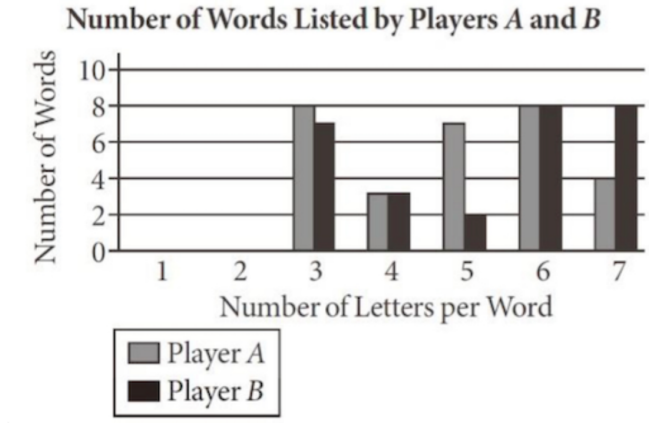


The graph shows the results of a word game in which two players were given identical sets of 12 different letters. Using only the 12 letters, each player listed as many words as the player could think of in three minutes, without repeating any letters within a word. Neither player listed a word with fewer than 3 or more than 7 letters.

In order to determine the scores for the players, each word listed with 3 or 4 letters was given 1 point, each word listed with 5 or 6 letters was given 2 points, and each word listed with 7 letters was given 3 points. The score for each player was the sum of the points given for the words that the player listed. What was the absolute value of the difference between the score for Player A and the Score for Player B?

_____point(s)

Question: 15



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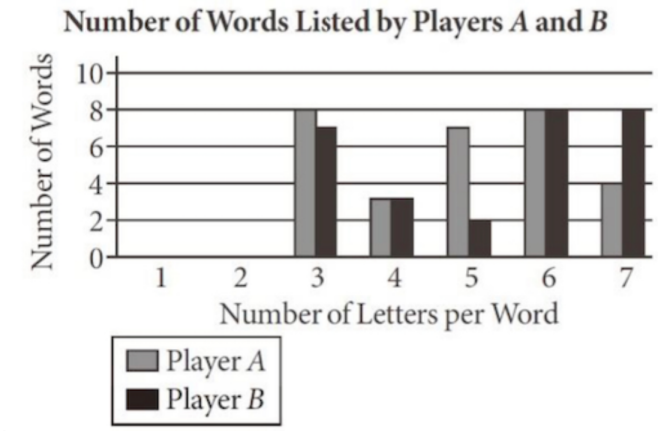
Of the 3-letter words listed by Player A or Player B, 4 words were listed by both players. How many of the 3-letter words listed were listed by only one of the two players?

- 7
- 8
- 11
- 15
- 19

Question: 16



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What is the average (arithmetic mean) number of letters per word in the words listed by Player B?

- 4.95
- 5.00
- 5.25
- 5.50
- 6.00

Question: 17

A certain museum contains a total of 1,500 works of art, of which 800 are paintings. Of the twentieth-century works of art in the museum, 40 percent are paintings. Of the works of art that are not paintings, 490 are not twentieth-century works of art.

How many twentieth-century works of art does the museum contain?

Question: 18

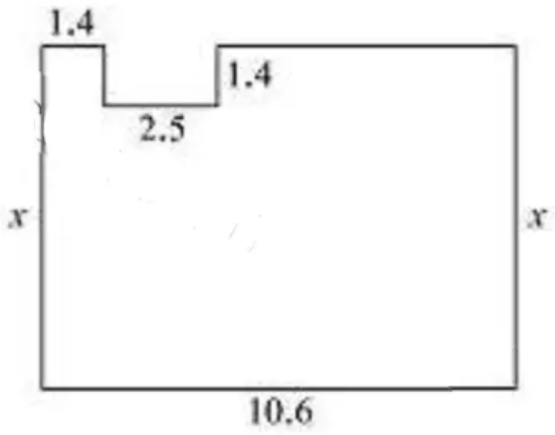
$1+2+3+.....+n=\frac{n(n+1)}{2}$

For each integer n greater than 1, the sum of the first n positive integers is given by the formula shown.

If the average (arithmetic mean) of the first n positive integers is k, what is the sum of the first n positive integers in terms of k?

- $k^2 - k$
- $\frac{k^2-k}{2}$
- $\frac{k^2+k}{2}$
- $2k^2 - k$
- $4k^2 + 2k$

Question: 19



The figure above represents the floor plan of a basement in which all the walls meet at right angles. The measurements shown in the floor plan, including the two sides of length x, are in centimeters. The floor plan is drawn using a scale of 1 centimeter to 1.5 meters. If the perimeter of the floor is 39.4 centimeters, approximately what is the area, in square meters, of the basement floor?

- 78
- 117
- 122
- 176
- 184

Question: 20

Let a be the greatest integer such that 5^a is a factor of 1,500, and let b be the greatest integer such that 3^b is a factor of 33,333,333. Which of the following statements are true?

Indicate all such statements.

- ☐ $a \cdot b = 3$
- ☐ $a = 3b$
- ☐ $2a > 5b$