KMF Math Sprint Practice - Section 20 Medium

Question: 1

a+b=5

Quantity A	Quantity B
$(a+\frac{b}{4})+(\frac{a}{4}+b)$	6

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

Question: 2

P, Q, and T are three distinct points in a plane.

Quantity A	Quantity B
The number of lines in the plane that pass through points P, Q and T	1

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

Question: 3

When the positive number k is multiplied by itself, the result is $\frac{1}{2}$ of k.

Quantity A	Quantity B
k	$\frac{1}{4}$

Question: 4

The set S consists of all of the different ordered pairs (x, y) for which x is a positive integer less than 50 and $y = \frac{1}{2}x + 10$.

Quantity A	**Quantity B**
The number of ordered pairs in S for which y is not an integer	25

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

Question: 5

The sum of 101 consecutive even integers is 20,200.

Quantity A	**Quantity B**
The average (arithmetic mean) of the 101 integers	The median of the 101 integers

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

Question: 6

Michael ate $\frac{1}{6}$ of the cookies in a full jar of cookies, and Tess ate $\frac{1}{7}$ of the remaining cookies in the jar.

Quantity A	**Quantity B**
The fraction of the cookies in the full jar that were not eaten by either Michael or Tess	$\frac{5}{7}$

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

Question: 7

Triangle ABC is equilateral. Vertices P, Q, and R of triangle PQR lie on sides AB, AC, and BC, respectively.

Quantity A	**Quantity B**
The sum of the measures of two of the interior angles of triangle ABC	The sum of the measures of two of the interior angles of triangle PQR

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

Question: 8

n is a positive integer.

Quantity A	**Quantity B**
The remainder when 3^{4n} is divided by 10	1

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

Question: 9

What is the sum of all the possible different 3-digit positive integers that can be formed using each of the digits 7, 8, and 9, without repetition?

Question: 10

Which of the following indicates all values of b such $(x-b)^2+1$ is positive?

- ○ $b \leq 0$
- ○ $b \leq 1$
- ○ $0 \leq b \leq 1$
- ○ $b \leq x$
- ○ All real numbers b

Question: 11

A demographic study describes a group of corporation executives and non executives having an average (arithmetic mean) age of 42 years. If the executives in the group average 40 years of age and the nonexecutives average 45 years of age, what is the ratio of the number of executives to the number of non executives in the group?

- ○ 2 to 1
- ○ 3 to 1
- ○ 3 to 2
- ○ 4 to 3
- ○ 5 to 3

Question: 12

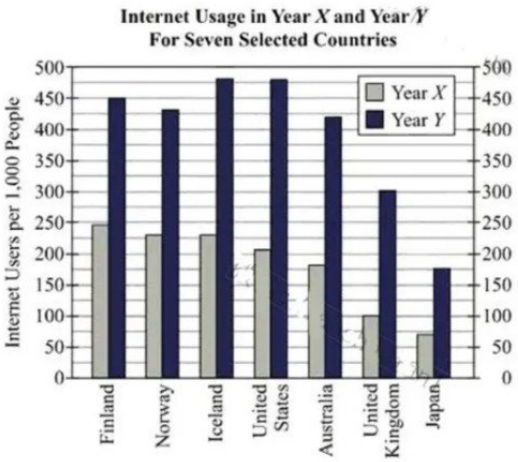
A restaurant has a total of 16 tables, each of which can seat a maximum of 4 people. If 50 people were sitting at the tables in the restaurant, with no tables empty, what is the greatest possible number of tables that could be occupied by just 1 person?

Question: 13

It cost a certain company a total of $4,200.00 to make and sell 3,000 widgets. If the company sold each of the 3,000 widgets for $2.10, what was the company`s profit per widget? (Profit is equal to the selling price minus the cost)

$_____

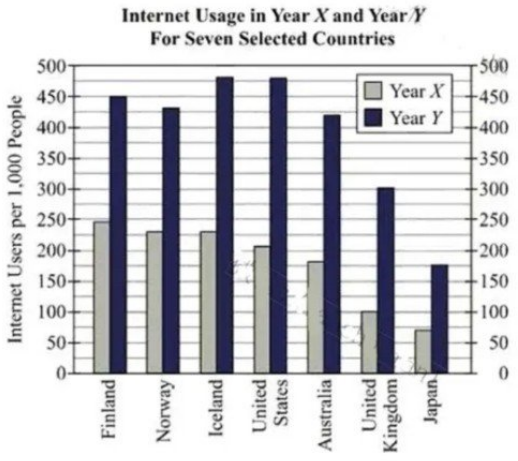
Question: 14



If the population of the United Kingdom was 60 million in year X, which of the following is closest to the total number of Internet users in the United Kingdom in year X?

- 0.6 million
- 1 million
- 6 million
- 10 million
- 16 million

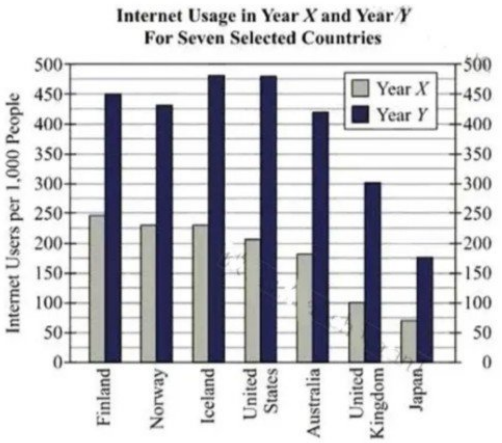
Question: 15



In year X, for how many of the countries shown was the number of Internet users greater than 15 percent of the population of that country?

- None
- Four
- Five
- Six
- Seven

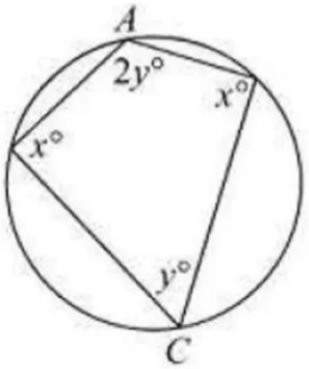
Question: 16



In year Y, the ratio of the number of Internet users per 1,000 people in Finland to the number of Internet users per 1,000 people in Japan was closest to which of the following?

- 2 to 1
- 3 to 2
- 4 to 1
- 4 to 3
- 5 to 2

Question: 17



In the figure above, a quadrilateral is inscribed in a circle. Line segment AC (not shown) is a diameter of the circle. What is the value of x+y?

x+y=_____

Question: 18

If k is the sum of three consecutive odd integers x, y, and z, where $x < y < z$, what is the sum of the three consecutive odd integers that immediately follow z?

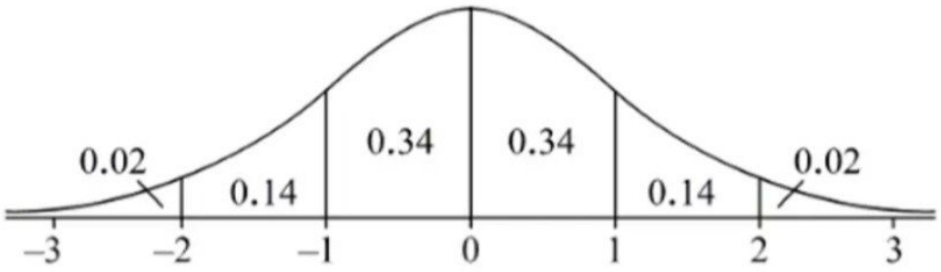
- k+6
- k+9
- k+12
- k+15
- k+18

Question: 19

If n is a positive integer, which of the following CANNOT be the units digit of $2^n - 1$?

- 1
- 3
- 5
- 7
- 9

Question: 20



The figure above shows a normal distribution with mean m and standard deviation d, including approximate percents of the distribution corresponding to the six regions shown.

The lengths of phone calls made on a certain weekend by students at High School H are approximately normally distributed with a mean of 30 minutes and a standard deviation of 10 minutes. Which of the following statements must be true?

Indicate all such statements.

- ☐ The range of the lengths of the phone calls is less than 60 minutes.
- ☐ The lengths of half of the phone calls are each greater than 40 minutes.
- ☐ The length of a 35-minute phone call is 0.5 standard deviation from the mean of the lengths of the phone calls.