Grade 5

Problem №1.

Jaime added three positive whole numbers and found that their sum was 47. One of his numbers was 11, and his second number was half of his third number.

What was the **positive difference** between Jaime's **smallest** and **largest** numbers?

A) 6   B) 13   C) 12   D) 1   E) 2

Problem №2.

The list of ten digits $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 0\}$ repeats indefinitely to form the following pattern: $1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 0 - 1 - 2 - 3 - 4 - \cdots$

What is the sum of the 31st, the 32nd, the 33rd, the 34th, and the 35th digit in the pattern?

A) 15   B) 10   C) 8   D) 20   E) 6

Problem №3.

Peter has 3 sisters and 5 brothers. His sister Joanna has S sisters and B brothers. What is the product of S and B?

A) 15   B) 8   C) 18   D) 6   E) 12

Problem №4.

A four-by-four square shown contains the numbers 1, 2, 3, and 4, so that in each row, each column, and in each of the two diagonals none of the numbers appear twice. What is the sum of the two numbers indicated by A and B ?

A) 4   B) 5   C) 6   D) 7   E) 8

Problem №5.

The set S = {1, 2, 3, … , 99, 100} contains the first 100 positive integers.
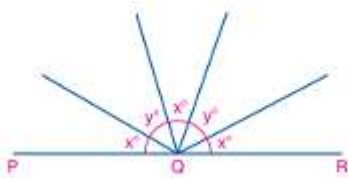
- First, all the multiples of 2 are removed from the list.

- Then all the multiples of 3 are removed from the list.

How many integers remain in the set S?

A) 29   B) 30   C) 31   D) 32   E) 33

Problem №6.

In the given figure, PQR is a straight line segment. If $x° + y° = 75°$, what is the value of x?

A) 25   B) 30   C) 35   D) 36   E) 45

Problem №7.

Try to find all natural numbers that are 5 times greater than their last digit.

A) 10   B) 15   C) 20   D) 9   E) 30

Problem №8.

In a class, 60% of the students are boys. 15% of the boys and 10% of the girls are left-handed. What percentage of the students in the class are right-handed?

A) 87%   B) 75%   C) 25%   D) 95%   E) 70%

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Problem №9.

Using the digits 1, 2, and 3 only, how many 1-digit, 2-digit, or 3-digit integers can be created, if the repetitions of digits is allowed?

Problem №10.

Mrs. Singleton has four daughters: Anna, Brianna, Carly, and Danielle. When Anna turned 11 years old, Brianna was 9 years old, Carly was 8 years old, and Danielle was 4 years old. What was the average of the ages of the four daughters when Danielle turned 30 years old?

Problem №11.

There are several methods of multiplying a three-digit number by another three digit number, one of which, showing how to multiply 692 by 354, is shown. However, some of the digits in this method have been erased. What is the sum of all of the erased digits?

$$
\begin{array}{r}
6\ 9\ 2 \\
\times\ 3\ 5\ 4 \\
\hline
\blacksquare\ 7\ 6\ 8 \\
\blacksquare\ 4\ \blacksquare\ 0 \\
\blacksquare\ 0\ \blacksquare\ 6 \\
\hline
2\ \blacksquare\ 4\ 9\ 6\ 8
\end{array}
$$

Problem №12.

In the sequence of numbers shown, each number after the fourth number is the sum of the preceding four numbers. 3, A, B, C, 30, 57, 109, 211, … What is the value of A+B+C?

Problem №13.

Adam wrote the numbers from 1 to 100. How many digits did he write?

Problem №14.

When a particular positive number is divided by 5, the remainder is 2. If the same positive number is divided by 6, the remainder is 1. If the difference between the quotients of division is 3, what is this positive number?

Problem №15.

How many three-digit numbers can be formed such that the sum of the digits is 6?