EXERCISE 1.3 PAGE: 1.16

1. How many four digit numbers are there in all?
Solution:

We know that the 10 digits are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9
0 cannot be used in thousands place so only nine digits can be used.
10 digits can be used in hundreds, tens and units place
The number of four digit numbers = 9 × 10 × 10 × 10 = 9000

Therefore, 9000 four digit numbers are there in all.

2. Write the smallest and the largest six digit numbers. How many numbers are between these two.
Solution:

We know that the smallest digit is 0 which cannot be used in the highest place value.
So 1 which is the second smallest digit can be used in the highest place value
The required smallest six digit number is 100000

We know that the largest digit is 9 which can be used in any place
The required largest six digit number is 999999

So we get the difference = 999999 – 100000 = 899999

Therefore, the smallest six digit number is 100000, the largest six digit number is 999999 and 899999 numbers are between these two numbers.

3. How many 8-digit numbers are there in all?
Solution:

We know that the 10 digits are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9
0 cannot be used in the highest place value and 9 can be used in the highest place value
So the 10 digits can be used in the remaining places of 8 digit numbers
The total number of 8 digit numbers = 9 × 10 × 10 × 10 × 10 × 10 × 10 × 10 = 90000000

Therefore, 90000000 eight digit numbers are there in all.

4. Write 10075302 in words and rearrange the digits to get the smallest and the largest numbers.
Solution:

The given number 10075302 can be written as one crore seventy five thousand three hundred and two.

To get smallest 8 digit number using 0, 1, 2, 3, 5 and 7
We use 1 which is the smallest digit in the highest place and largest digit 7 at the units place
Further we put 5 in the tens place, 3 in the hundreds place and 2 in thousands place
So the required smallest number is 10002357

To get largest 8 digit number using 0, 1, 2, 3, 5 and 7
We use 7 which is the largest digit in the highest place value, 5 in a place after highest place, 3 as the next one, 2 as the smallest digit and then 1.

So the required largest number is 75321000.

5. What is the smallest 3-digit number with unique digits?
Solution:

102 is the smallest 3-digit number with unique digits.

6. What is the largest 5-digit number with unique digits?
Solution:

98765 is the largest 5-digit number with unique digits.

7. Write the smallest 3-digit number which does not change if the digits are in reverse order.
Solution:

101 is the smallest 3-digit number which does not change if the digits are in reverse order.

8. Find the difference between the number 279 and that obtained on reversing its digits.
Solution:

The reverse of 279 is 972
Difference between both the numbers = 972 – 279 = 693

Therefore, the difference between the number 279 and that obtained on reversing its digits is 693.

9. Form the largest and smallest 4-digit numbers using each of digits 7, 1, 0, 5 only once.
Solution:

The largest 4 digit number = 7510
Smallest 4 digit number = 1057

Therefore, the largest and smallest 4-digit numbers using each of digits 7, 1, 0, 5 only once is 7510 and 1057.