Chapter- 3

ADDITION

STUDY NOTES

*** Addition of Two 3-digit Numbers and Two 4-digit Numbers (without carry over)**

*** Addition of Two 3-digit Numbers and Two 4-digit Numbers (with carry over)**

*** Addition of a 3-digit Number and a 4-digit Number**

*** Addition of Three 4-digit Numbers**

*** Word problems**

*** Estimation**

*** Addition of Five Digit Numbers**

1. Addition of Two 3-digit Numbers and Two 4-digit Numbers (without carry over)

EXPLANATION

The addition means finding the total or sum of two or more numbers by combining them. 3-digit numbers are, well, numbers with 3 digits from 100 to 999. 3-Digit Addition means finding the sum of two or more 3-digit numbers. Think two 3-digit numbers having digits 0 to 4. Say 213 and 421. We should add the digits of the same place.

➢ **For example:**

1)

$$\begin{array}{r} 2\ 1\ 3 \\ +\ 4\ 2\ 1 \\ \hline 6\ 3\ 4 \end{array}$$

3 + 1 = 4
1 + 2 = 3
2 + 4 = 6

Now let us add two 4-digit numbers.

➢ **For example:**

2)

$$\begin{array}{r} 1\ 4\ 1\ 3 \\ +\ 3\ 1\ 2\ 1 \\ \hline 4\ 5\ 3\ 4 \end{array}$$

3 + 1 = 4
1 + 2 = 3
4 + 1 = 5
1 + 3 = 4

2. Addition of Two 3-digit Numbers and Two 4-digit Numbers (with carry over)

EXPLANATION

Think of a 3-digit number, say 254 and then think of another 3-digit number, say 378. Now let us recall how to add. Write one number below the other and then add. At first we have to add the ones place i.e. 4 + 8 = 12 , so we should write 2 and keep 1 in hand, then add the tens place 5 + 7 = 12 + 1 = 13 so, again we will write 3 and keep 1 in hand, then add the hundred place 2 + 3 = 5 + 1 = 6. So the answer is 632.

➢ **For example:**

1)

$$\begin{array}{r} 2\ 5\ 4 \\ +\ 3\ 7\ 8 \\ \hline 6\ 3\ 2 \end{array}$$

4 + 8 = 1 2
5 + 7 = 12 + 1 = 1 3
2 + 3 = 5 + 1 = 6

Think of a 4-digit number, say 1968 and then think of another 4-digit number, say 3275. Now let us recall how to add. Write one number below the other and then add. At first we have to add the ones place i.e. 8 + 5 = 13 , so we should write 3 and keep 1 in hand, then add the tens place 6 + 7 = 13 + 1 = 14 so, again we will write 4 and keep 1 in hand, then add the hundred place 9 + 2 = 11 + 1 = 12, again we will write 2 and keep 1 in hand, then add the thousand place 1 + 3 = 4 + 1 = 5. So the answer is 5243.

➢ **For example:**

2)

	1	9	6	8
+	3	2	7	5
	5	2	4	3

8 + 5 = 13
6 + 7 = 13 + 1 = 14
9 + 2 = 11 + 1 = 12
1 + 3 = 4 + 1 = 5

3. Addition of a 3-digit Number and a 4-digit Number

➢ **For example:**

		9	9	4
+	1	5	1	9
	2	5	1	3

4 + 9 = 13
9 + 1 = 10 + 1 = 11
9 + 5 = 14 + 1 = 15
1 + 1 = 2

4. Addition of Three 4-digit Numbers

To add 4-digit number we 1st add the ones column and if it is more than 9 ones, we keep the number in the tens place in hand. Then we add the tens column and with it we add the number in hand. Similarly, if the sum is more than one digit, we write the right-hand digit in the tens column and the left-hand digit we keep in hand. Again, we add the hundreds column and with it we add the number in hand. Similarly, if the sum is more than one digit, we write the right-hand digit in the hundred column and the left-hand digit we keep in hand. At last, we add the thousands column and the number in hand and write the sum.

➢ **For example:**

```
    1  1  1
 5  9  9  4
 1  5  1  9
+2  4  3  2
 9  9  4  5
```

1st step: add the ones → 4 + 9 + 2 = 1 5 = 1ten + 5 ones.
So, write 5 in ones column and carry 1 to the tens column.

2nd step: add the tens → 9 + 1 + 3 = 13 + 1 = 1 4
So, write 4 in the tens column and carry 1 to the hundred column.

3rd step: add the hundreds → 9 + 5 + 4 = 18 + 1 = 1 9
So, write 9 in the hundred column and carry 1 to the thousand column.

4th step: add the thousands → 5 + 1 + 2 = 8 + 1 = 9
So, write 9 in the thousand column.

5. Word problems

EXPLANATION

First read the sum properly and understand what is asked. There are some special words that are associated with addition, the words are, "Total, In all, Sum, Altogether". Then read the 1st sentence and try to frame the 1st statement. Similar way the 2nd and then add to find the total.

After completion use the Therefore sign ∴ ( ) and write the statement that gives the answer to the end question of the story sum.

➢ **For example:**

Q. In a train there are 236 first class seats and 848 second class seats. What is the total number of seats in the train?

ANS:
Number of first class seats = 2 3 6
Number of second class seats = + 8 4 8
Total number of seats = 1 0 8 4

∴ There are 1 0 8 4 seats in the train.

6. Estimation

EXPLANATION

Estimate means to find something close to the correct answer. Estimation of numbers is the process of approximating or rounding off the numbers in which the value is used for some other purpose in order to avoid the complicated calculations.

When it comes to estimating in math, there is a general rule for you to follow. This general rule tells you to look at the digit to the right of the digit you want to estimate, and if it is less than 5 then you round down, and if it is greater than 5, you round up.

If it is less than 5, you round down and if it is more than 5, you round up

< 5 **> 5**

Rules to round off a number to the nearest 10

*** We will consider the ones digit of the given number.**

*** If it is 5 or more, then add 1 (one) to the tens digit and put zero (0) at the ones place.**

*** If the ones digit is less than five (5), put zero (0) at the ones place. No change is made in the tens digit.**

➢ **For example:**

Round off the following numbers to the nearest 10

i) 65 ii) 423 iii) 1357

i) Since ones digit in 65 is 5, we round up. So, it will be 70.

ii) Since ones digit in 423 is 3, we round down. So, it will be 420.

iii) Since ones digit in 1357 is 7, we round up. So, it will be 1360.

REMEMBER

When we Round off the following numbers to the nearest 10 there will be zero (0) in ones place only.

Rules to round off a number to the nearest 100

*** We will consider the tens digit of the given number.**

*** If the tens digit is 5 or more, we put zero (0) at the ones and tens place and add 1 (one) to the hundreds digit.**

*** If the tens digit is 5 or less, we put zero (0) at the ones and tens place and no change is made in the hundreds digit and keep as it is.**

➢ **For example:**

Round off the following numbers to the nearest 100

i) 129 ii) 793 iii) 9742

i)Since tens digit in 129 is 2, we round down. So, it will be 100.

ii)Since tens digit in 793 is 9, we round up. So, it will be 800.

iii)Since tens digit in 9742 is 4, we round down. So, it will be 9700.

REMEMBER

When we Round off the following numbers to the nearest 100 there will be zero (0) in tens and also ones place.

Rules to round off a number to the nearest 1000

*** We will consider the hundreds digit of the given number.**

*** If the hundreds digit is 5 or more, we put zero (0) at the ones, tens and hundreds place and add 1 (one) to the thousands digit.**

*** If the hundreds digit is 5 or less, we put zero (0) at the ones, tens and hundreds place and no change is made in the thousands digit and keep as it is.**

➢ **For example:**

Round off the following numbers to the nearest 1000

ii) 6129 ii) 7923 iii) 9742

i) Since hundreds digit in 6129 is 1, we round down. So, it will be 6000.

ii) Since hundreds digit in 7623 is 6, we round up. So, it will be 8000.

iii)Since hundreds digit in 5032 is 0, we round down. So, it will be 5000.

REMEMBER

When we Round off the following numbers to the nearest 1000 there will be zero (0) in hundreds, tens and also ones place.

7. Addition of Five Digit Numbers

To add 5-digit number we 1st add the ones column and if it is more than 9 ones, we keep the number in the tens place in hand. Then we add the tens column and with it we add the number in hand. Similarly, if the sum is more than one digit, we write the right-hand digit in the tens column and the left-hand digit we keep in hand. Again, we add the hundreds column and with it we add the number in hand. Similarly, if the sum is more than one digit, we write the right-hand digit in the hundred column and the left-hand digit we keep in hand. Again, we add the thousands column and with it we add the number in hand. Similarly, if the sum is more than one digit, we write the right-hand digit in the thousands column and the left-hand digit we keep in hand., At last, we add the ten thousands column and the number in hand and write the sum.

➢ **For example:**

```
  1  1  1  1
  3  5  7  1  9
+ 4  9  4  8  2
  8  5  2  0  1
```

1st step: add the ones → 9 + 2 = 1 1
So, write 1 in ones column and carry 1 to the tens column

2nd step: add the tens → 1 + 8 = 9 + 1 = 1 0
So, write 0 in the tens column and carry 1 to the hundred column.

3rd step: add the hundreds → 7 + 4 = 11 + 1 = 1 2
So, write 2 in the hundred column and carry 1 to the thousand column.

4th step: add the thousands → 5 + 9 = 14 + 1 = 1 5
So, write 5 in the thousand column and carry 1 to the ten thousand column.

5th step: add the ten thousands → 3 + 4 = 7 + 1 = 8
So, write 8 in the ten thousand column.

➢ **For example:**

	1	1	1	1
	1	6	4	3	2
	3	5	7	2	9
+	4	3	1	8	7
	9	5	2	4	8

1st step: add the ones → 2 + 9 + 7 = 1 8
So, write 8 in ones column and carry 1 to the tens column

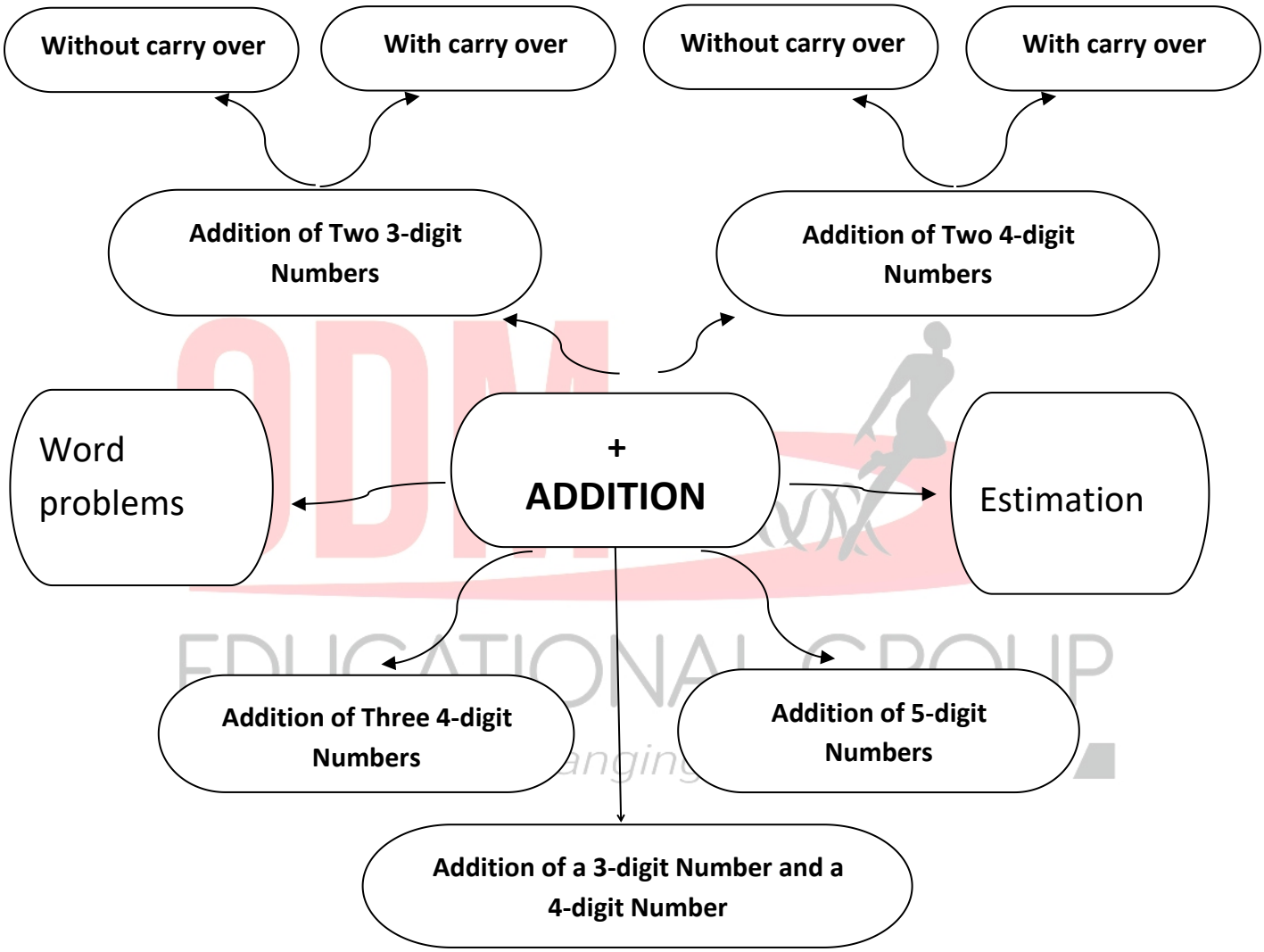
2nd step: add the tens → 3 + 2 + 8 = 13 + 1 = 1 4
So, write 4 in the tens column and carry 1 to the hundred column.

3rd step: add the hundreds → 4 + 7 + 1 = 12 + 1 = 1 3
So, write 3 in the hundred column and carry 1 to the thousand column.

4th step: add the thousands → 6 + 5 + 3 = 14 + 1 = 1 5
So, write 5 in the thousand column and carry 1 to the ten thousand column.

5th step: add the ten thousands → 1 + 3 + 4 = 8 + 1 = 9
So, write 9 in the ten thousand column.

MIND MAP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