CHAPTER- 16

Time

Look at the clock shown in your book. The dial of the clock has been divided into 12 big parts. These big parts have been represented by number i.e. from 1 to 12. Each big part has been further divided into 5 small parts. Now, we have 60 small parts on the dial. To know the time., needles of second, minute and hour have been shown.

The seconds hand takes 1 second to cross a small part of the dial. The minutes hand on the other hand takes 1 minute to cross 1 smaller part.

The seconds hand crosses a small part in one second, and to have complete round of the clock, it crosses sixty small parts and takes 60 seconds for it.

The minutes hands takes 60 seconds to cross one small part, on the basis of this we can say.

1 minute = 60 seconds
Or 60 seconds = 1 minute

Likewise the minutes hand takes 60 minutes to have a complete round. The hours hand takes 60 minutes to cross one big part and we say that the hour's hand had taken one hour.

Means,

1 hour = 60 minutes
Or 60 minutes = 1 hour

You might have seen that the hours hand takes two rounds in a day. That means one day has twenty four hours.

That is a day has 24 hours

24 hours = 1 day
Or 1 day = 24 hours

Now change minutes to seconds-

How do we change 5 minutes to seconds?

Nita did it like this-

5 minutes = 1 minute + 1 minute + 1 minute + 1 minute + 1 minute

= 60 seconds + 60 seconds + 60 seconds + 60 seconds + 60 seconds

= 300 seconds.

$\therefore$ 5 minutes = 300 second

We can do this another way

As 1 minute equals 60 seconds

$\therefore$ 5 minute equal 60x5 seconds

= 300 seconds

Hence 5 minute = 300 seconds

How can we change 180 minute to hours?

We can do this by the following method:

As 60 minutes equal 1 hour

Therefore 1 minute equals $\frac{1}{60}$ hour

and 180 minutes equal $\frac{1}{60} \times 180$ hours

= 3 hours

Hence 180 minutes = 3 hours

Change the following-

(1) 8 minutes to seconds.

(2) 240 seconds to minutes.

(3) 6 hours to minutes.

(4) 300 minutes to hours.

Here you saw the relation between seconds, minutes and hours. Similar relation can be established between days, weeks, months and years.

To understand this fill the following table:

S.No.	Name of the month	Number of days
1.	January	31
2.	February	28
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

Total number of days .....

Answer these -

How many months are there in a year?

.....

How many days are there in a month?

.....

(From the table you filled above you must have realised that the number of days is not the same in each month. That is why we consider that on an average there are 30 days in a month)

How many days are there in a year?

.....

In leap year February has 29 days. So how many days will there be in a leap year?

.....

(1) How many hours are there in 2 days?

(2) Change 72 hours to days.

(3) Change 4 months to days.

(4) How many months will there be in 90 days?

Fill in the blanks-

(1) 280 seconds = ... minutes ..... seconds.

(2) 150 minutes = ... hours ..... minutes.

(3) 52 hours = ... days ..... hours.

(4) 4 minutes 10 seconds = ... seconds.

(5) 1 hour 17 minutes = ... minutes.

(6) 3 days 10 hours = ... hours.

(7) 2 months 9 days = ... days.

(8) 1 year 10 months = ... months.

Adding time intervals

To add time intervals we add seconds to seconds, mnutes to minutes and hours to hours. But if the addition of seconds is more then 60, then we carry one minute to minutes column and now add the minutes to minutes.

So also if the addition of minutes exceeds 60 minutes, you carry 1 hour to the hours column and add the hours.

To add year, months and days also we use a minute method.

Example 1 : 5 hours 30 minutes

+ 2 hours 20 minutes

7 hours 50 minutes

Example 2 : Add 3 hours 40 minutes and 1 hour 50 minutes

Solution : 3 hours 40 minutes

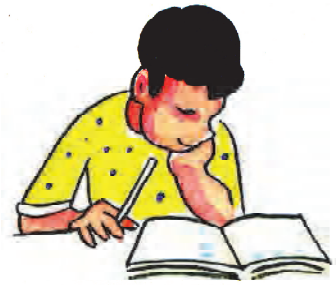
+ 1 hour 50 minutes

4 hours 90 minutes

= 4 hours + 60 minutes + 30 minute

= 4 hour + 1 hour + 30 minutes

= 5 hours 30 minues



Add :

(1) 3 hours 30 minutes and 2 hours 15 minutes.

(2) 5 hours 45 minutes and 4 hours 25 minutes.

(3) 7 hour 44 minutes and 1 hour 31 minutes.

(4) 2 hour 30 minutes 20 seconds and 6 hour 10 minutes 10 second

(5) 6 hour 40 minutes 45 seconds and 2 hour 20 minutes 35 seconds

(6) 8 years 7 months and 2 years 3 months.

(7) 5 years 8 months and 3 years 5 months.

Subtraction of time intervals

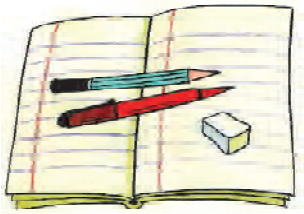
To subtract time intervals we subtract seconds from seconds, minutes from minutes and hours from hours. But if the minutes to be subtracted is more than the minutes in the above row, we borrow 1 hour of 60 minutes from the hours column and add this to the minutes in the above line before subtracting. If there are seconds involved we do follow a similar procedure.

A similar method is used to subtract days, months and year.

Example 3 : Subtract 5 hours 25 minutes from 8 hours 50 minutes

Solution :

8 hours 50 minute
– 5 hours 25 minute
3 hours 25 minutes



Example 4 : Subtract 1 hour 15 minutes from 3 hours 10 minutes

Solution : Here you cannot subtract 15 minutes from 10 minutes so you take 3 hours 10 minutes as 2 hours 70 minutes and then subtract.

3 hours 10 minutes = 2 hours + 1 hour + 10 minutes
= 2 hours + 60 minutes + 10 minutes
= 2 hours + 70 minutes

2 hour 70 minutes
– 1 hour 15 minutes
1 hour 55 minutes

Subtract-

(1) 5 hours 25 minute from 8 hours 40 minutes.

(2) 2 hours 40 minutes from 7 hour 20 minutes.

(3) 3 hours 55 minutes from 12 hour 35 minutes.

(4) 4 hours 20 minutes 25 seconds from 5 hours 25 minutes 15 seconds.

(5) 5 hours 40 minutes 12 seconds from 9 hours 15 minutes 25 seconds.

(6) 2 years 5 months from 4 years 7 months

(7) 3 years 8 months from 7 years 3 months.

Exercise

(1) Manisha spends 4 hours 30 minutes studying in school and 3 hours 30 minutes studying at home. So how much time does she spend studying totally?

(2) A labour works daily for 5 hours 20 minutes in the farm and 2 hours 30 minutes at home. So how much time does he spend working daily?

(3) Mohan finishes a job in 5 hours 40 minutes of the allotted time 8 hours. How much time before does he finish the job?

(4) A cyclist covers a distance of 25 km in 3 hours and 55 minutes and a motor cyclist takes 1 hour 15 minutes to cover the same distance. How much less time did the motorcyclist take than the cyclist?

(5) A labourer worked for 2 weeks in a factory. He worked daily for 6 hours. So how many hours did he work totally?

(6) Waheed stayed for 12 days at his brother in law's place, 15 days at his grand mother's place and 5 days at his friends place, during his holidays. So how many weeks and how many days did he spend with friends and relation?

(7) Pushpa is 1 year and 3 month younger than Amit. Amit 1 year and 10 months younger to Rashmi. So how much younger is Pushpa than Rashmi?

(8) A bus took 2 hours and 25 minutes to reach Saraipalli from Raigarh and 3 hours 10 minutes to reach Raipur from Saraipalli. So how much time did it take to go from Raigarh to Raipur?

(9) Poonam's birth date is 28.01.1996. What will her age be on 30 Sept. 2005?

Calculation of Age -

Poonam's date of birth is 28 Jan. 1996, what was her age on 30 sept. 2005.

Solution:

1. To calculate the age for a particular date, we write first year then month and then date.
2. Then we will write the Date of birth below.
3. Now you subtract Day from Day, month from month and year from year.

	Year	Month	Day
	2005	09	30
−	1996	01	28
	09	08	02

∴ On 30th Sept. 2005 Poonam's age is 9 years, 8 months and 2 days.

Can you find your age? Write in figures and in words -

.....

You also find your age as on 31st December -

	Year	Month	Day
	.....	12	31
−	.....	.....	.....
	.....	.....	.....

Coming year what will be your age as on 1st January.