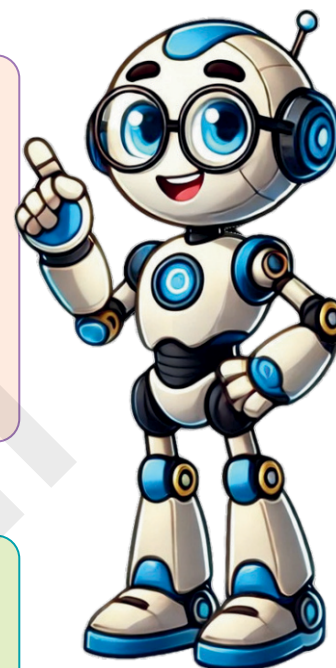




# Time and Calendar

**We'll cover the following key points:**

- Clock
- Time Shown by a Clock
- How to Read Clock, to Find the Time in Hour, Half Hour or Quarter Hour?
- Converting Time
- Learn From The Calendar



Hi, I'm EeeBee

**Do you Remember fundamental concept in previous class.**

**In class 2<sup>nd</sup> we learnt**

- Clock
- Calendar

**In class 1<sup>st</sup> we learnt**

- Time
- Measuring Time



**Still curious?**  
Talk to me by  
scanning  
the QR code.

## Learning Outcomes

**By the end of this chapter, students will be able to:**

- Identify and read the time accurately from an analog and digital clock.
- Understand and differentiate between hours, minutes, and seconds.
- Relate the concepts of a.m. and p.m. to daily activities.
- Calculate the duration of time between two given events.
- Understand the concept of days, weeks, months, and years in a calendar.
- Identify and sequence the days of the week and months of the year correctly.
- Use a calendar to locate specific dates and determine the day of the week.
- Relate the number of days in each month and identify leap years.
- Solve real-life problems involving time, such as scheduling activities or finding elapsed time.
- Develop awareness of the importance of time management in daily life.



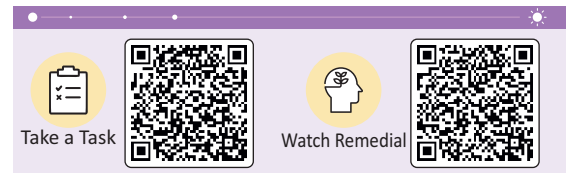
## Warm Up

Art-integrated Learning

**Draw a picture and fill in the calendar for the month in which your birthday comes. Shade your birthday date with your favourite colour.**

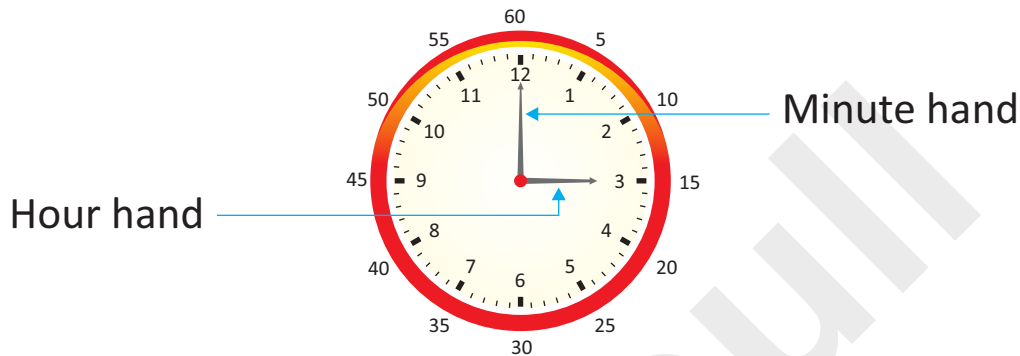
	MONTH		YEAR			
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

## Clock



As you know that time is measured with the help of a clock. A clock generally has two hands.

The longer hand is called the **minute hand** and shorter hand is called the **hour hand**. There are 12 big divisions marked on the face of the clock such that 1, 2, 3, ..... 12.



Each big division has 5 small divisions.

Thus, there are **60 small divisions** ( $12 \times 5 = 60$ ) on the face of a clock.

### Hour Hand

An hour hand takes **1 hour** to move from one big division (one number) to the next big division (next number).

Thus, an hour hand takes **12 hours** to complete one round.

### Minute Hand

A minute hand takes **1 minute** to move from one small division to the next small division.

Also, it takes **5 minutes** to move from one big division (one number) to the next big division (next number).

Since there are 60 small divisions, a minute hand takes **60 minutes** to complete one round.

We can show it as follows:

When the minute hand is at	Time in minutes
1	$1 \times 5 = 5$ minutes
2	$2 \times 5 = 10$ minutes
3	$3 \times 5 = 15$ minutes ( <b>Quarter past</b> )
4	$4 \times 5 = 20$ minutes
5	$5 \times 5 = 25$ minutes
6	$6 \times 5 = 30$ minutes ( <b>Half past</b> )
7	$7 \times 5 = 35$ minutes
8	$8 \times 5 = 40$ minutes
9	$9 \times 5 = 45$ minutes ( <b>Quarter to</b> )
10	$10 \times 5 = 50$ minutes
11	$11 \times 5 = 55$ minutes
12	$12 \times 5 = 60$ minutes

### REMEMBER



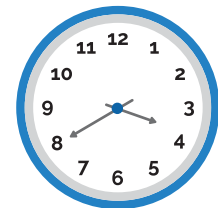
Some clocks have a third hand. It is thinnest hand of the clock and known as the second hand. The second hand takes 60 seconds or 1 minute to complete one round on the dial of the clock i.e. 1 minute = 60 seconds

## Time Shown by a Clock

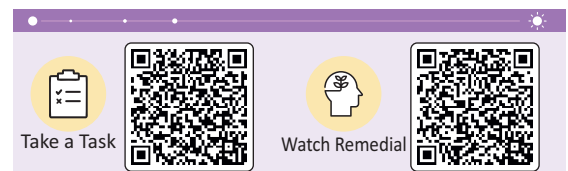
### Number of Minutes Past the Hour

#### Steps to know the time

- First, look at the position of the hour hand to know where it lies between the two hours.
- Then, look at the position of the minute hand.  
Also, find the number of minutes it has already covered during the round.



The hour hand is between 3 and 4 and the minute hand is at 8.  
**Time:** 40 minutes past 3



- Now, read the time as  
"number of minutes past the hour."

## Number of Minutes to the Next Hour

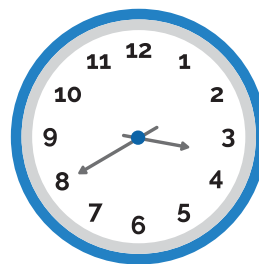
### Steps to know the time

- First, look at the position of the hour hand to know where it lies between the two hours.

- Then, look at the position of the minute hand.

Also, find number of minutes it has to cover to complete one round at 12.

- Now read the time as "number of minutes to the next hour."



The hour hand is between 3 and 4 and the minute hand is at 8.

**Time:** 20 minutes to 4



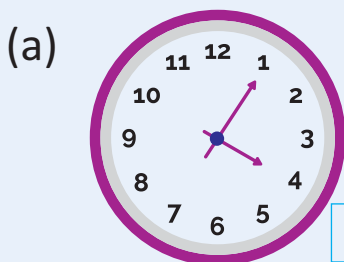
## Exercise 9.1

Knowledge Application

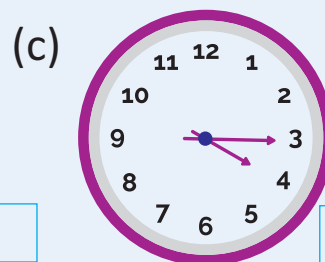
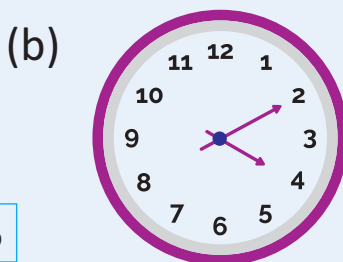
### 1. Fill in the blanks:

- An hour hand takes ..... hours to move from number 3 to number 8.
- A minute hand takes ..... minutes to move from number 5 to number 11.
- A minute hand takes ..... minutes to move from number 10 to the number 4.
- An hour hand takes ..... hours to move from number 7 to number 4.
- A minute hand takes ..... minutes to move from number 9 to number 8.

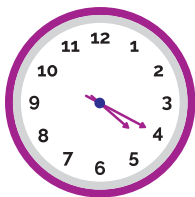
### 2. Read the time and write it in 2 ways. One has been done for you:



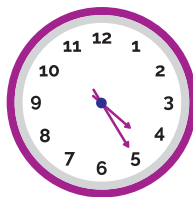
5 minutes past 4



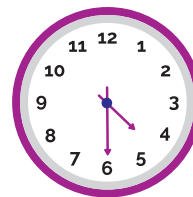
(d)



(e)

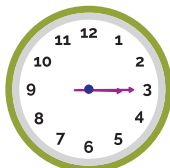


(f)



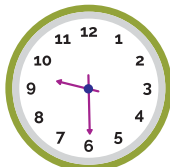
3. Match the following clocks to the time shown by them:

(a)



(i) 5:10

(b)



(ii) 10:45

(c)



(iii) 1:40

(d)



(iv) 3:15

(e)



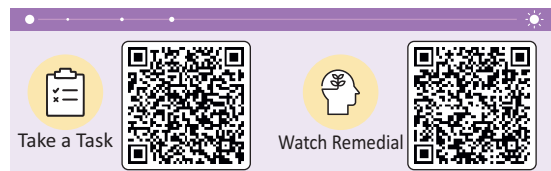
(v) 9:30

## Project Work

## Knowledge Application

Make a beautiful clock using chart paper and other material.

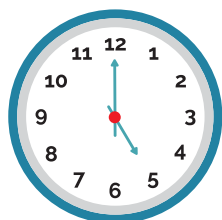
## How to Read Clock, to Find the Time in Hour, Half Hour or Quarter Hour?



We have already learnt how to read the clock to find the time in hours and half hours.

Let us first revise that briefly and then learn how to read clock in quarter hours.

**Full Hour :** When time is in full hours, the minute hand is at 12.



5 o'clock



8 o'clock



11 o'clock

**Half Hour :** When the time is in half hours, the minute hand is at 6.



Half past 7 or 7 : 30



Half past 2 or 2 : 30

Now, let us learn how to read clock to find the time in quarter hours.

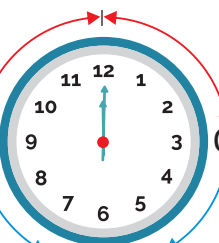
### Quarter Hour

Number of minutes  
to next hour 12



Quarter to 10  
or 9 : 45

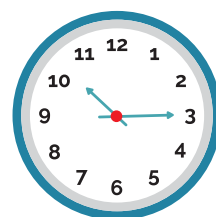
Quarter to



Half past

Quarter past

Number of minutes  
past the hour

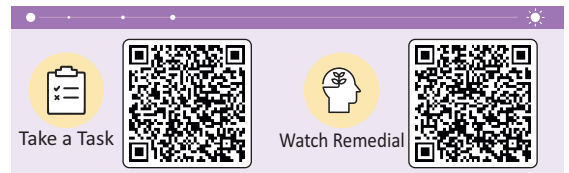


Quarter past 10  
or 10 : 15

When the minute hand points at 9, we read the time as 'quarter to' .....  
The minute hand has covered 45 minutes.  
The hour hand has just to cross the hour.

When the minute hand points at 3, we read the time as 'quarter past' .....  
The minute hand has covered 15 minutes.  
The hour hand has just crossed the hour.

## Converting Time



### Conversion of Days into Hours and Hours into Minutes

We know that  $1 \text{ day} = 24 \text{ hours}$ .

So,  $2 \text{ days} = 2 \times 24 = 48 \text{ hours}$

$3 \text{ days} = 3 \times 24 = 72 \text{ hours}$

$5 \text{ days} = 5 \times 24 = 120 \text{ hours}$

We conclude that, to convert days into hours, we **multiply the number of days by 24**.

We have learnt that  $1 \text{ hour} = 60 \text{ minutes}$ .

So,  $2 \text{ hours} = 2 \times 60 = 120 \text{ minutes}$

$3 \text{ hours} = 3 \times 60 = 180 \text{ minutes}$

$8 \text{ hours} = 8 \times 60 = 480 \text{ minutes}$

#### Note

To convert 'hours' and 'minutes' into minutes, we first multiply the number of hours by 60 and then add it to the number of minutes.

Now, we conclude that, to convert hours into minutes, we multiply the number of hours by 60.

**Example 1:** Convert 2 hours 40 minutes into minutes.

**Solution:**  $2 \text{ hours } 40 \text{ minutes} = 2 \times 60 \text{ minutes} + 40 \text{ minutes}$   
 $= 120 \text{ minutes} + 40 \text{ minutes} = 160 \text{ minutes}$

Thus,  $2 \text{ hours } 40 \text{ minutes} = \mathbf{160 \text{ minutes}}$ .

**Example 2:** Convert 7 hours 55 minutes into minutes.

**Solution:**  $7 \text{ hours } 55 \text{ minutes} = 7 \times 60 \text{ minutes} + 55 \text{ minutes}$   
 $= 420 \text{ minutes} + 55 \text{ minutes}$   
 $= 475 \text{ minutes}$

Thus,  $7 \text{ hours } 55 \text{ minutes} = \mathbf{475 \text{ minutes}}$ .

**Example 3:** Convert 9 days 10 hours into hours.

**Solution:**  $9 \text{ days } 10 \text{ hours} = 9 \times 24 \text{ hours} + 10 \text{ hours}$   
 $= 216 \text{ hours} + 10 \text{ hours} = 226 \text{ hours}$

Thus,  $9 \text{ days } 10 \text{ hours} = \mathbf{226 \text{ hours}}$ .



**Example 4:** Convert 5 days 8 hours into hours.

**Solution:** 5 days 8 hours =  $5 \times 24$  hours + 8 hours  
= 120 hours + 8 hours = 128 hours

Hence, 5 days 8 hours = **128 hours.**

### Conversion of Hours or Minutes into Seconds

We have the following :

1 minute = 60 seconds

2 minutes =  $2 \times 60 = 120$  seconds

3 minutes =  $3 \times 60 = 180$  seconds and so on.

Now, 60 minutes =  $60 \times 60 = 3600$  seconds

But, we know that 1 hour = 60 minutes.

Hence, 1 hour = 3600 seconds.

**Example 5:** Convert 3 hours 35 minutes into seconds.

**Solution:** 1 hours = 3600 seconds  
3 hours =  $3 \times 3600 = 10800$  seconds  
35 minutes =  $35 \times 60 = 2100$  seconds  
Thus, 3 hours 35 minutes = 10800 seconds + 2100 seconds  
= **12900 seconds.**



## Exercise 9.2

Knowledge Application

### 1. Multiple Choice Questions (MCQs)

**Choose the correct option:**

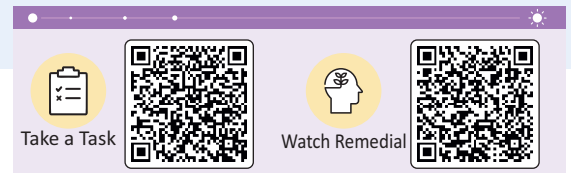
- (a) How many hours are there in 6 days ?  
(i) 144 hours                      (ii) 120 hours                      (iii) 166 hours
- (b) To convert days into hours, we multiply the number of days by  
(i) 7                                      (ii) 24                                      (iii) 60

### 2. Convert into hours :

- (a) 9 days                                      (b) 15 days  
(c) 13 days                                      (d) 28 days  
(e) 3 months 4 days                                      (f) 8 months 6 days

### 3. Convert into seconds :

- (a) 30 minutes
- (b) 5 hours
- (c) 5 minutes 35 seconds
- (d) 8 minutes 56 seconds
- (e) 9 hours 18 minutes



### Learn From The Calendar

We measure time not only by days, hours and minutes, but also by weeks, months and years.

We know that there are 7 days in a week.

The days are :

1. Monday	4. Thursday	7. Sunday
2. Tuesday	5. Friday	
3. Wednesday	6. Saturday	

We know that, 30 days = 1 month

There are 12 months in a year.

The months having the number of days are given below:

1. January	31 days	7. July	31 days
2. February	28 or 29 days	8. August	31 days
3. March	31 days	9. September	30 days
4. April	30 days	10. October	31 days
5. May	31 days	11. November	30 days
6. June	30 days	12. December	31 days

There are 365 days in a year, but a leap year has 366 days.

A year which is exactly divisible by 4 is called a **leap year**.

For example, 2016, 2020, 2024 etc.... are leap years. In a leap year,

February has 29 days.

**Example 5:** Convert 2 months 6 weeks into days.

**Solution:** 2 months =  $2 \times 30 = 60$  days

(We have taken, 1 month = 30 days.)

6 weeks =  $6 \times 7 = 42$  days

Thus, 2 months 6 weeks =  $60 + 42 = 102$  days.

**Example 6:** Convert 3 years 7 months into days.

**Solution:** 3 years =  $3 \times 365 = 1095$  days

7 months =  $7 \times 30 = 210$  days

Thus, 3 years 7 months =  $1095 + 210 = 1305$  days.



## Exercise 9.3

Knowledge Application

### 1. Fill in the blanks:

- (a) Monday comes after .....
- (b) Friday comes before .....
- (c) Saturday comes between ..... and .....
- (d) The first month of the year is .....
- (e) The fourth month of the year is .....

### 2. Write True or False:

- (a) The ninth month of the year is December
- (b) November comes between October and December.
- (c) January is the last month of the year.
- (d) 12 days is equal to 1 week.
- (e) 7 months is equal to 1 year.

### 3. Convert into days:

- |                       |                        |
|-----------------------|------------------------|
| (a) 5 weeks           | (b) 25 weeks           |
| (c) 9 months          | (d) 6 months 3 weeks   |
| (e) 28 months 5 weeks | (f) 13 months 14 weeks |



Gap Analyzer™  
Take a Test

**1. Tick (✓) the correct answer:**

- (a) 15 minutes to 9 is the same as \_\_\_\_\_.  
 (i) 8:15 ☐ (ii) 8:45 ☐ (iii) 7:45 ☐
- (b) 20 minutes to 3 is the same as \_\_\_\_\_.  
 (i) 2:20 ☐ (ii) 2:40 ☐ (iii) 2:50 ☐
- (c) 25 minutes past 7 is written as \_\_\_\_\_.  
 (i) 10:20 ☐ (ii) 7:25 ☐ (iii) 7:05 ☐
- (d) How many minutes are there in 7 hours?  
 (i) 400 minutes ☐ (ii) 480 minutes ☐ (iii) 420 minutes ☐

**2. Fill in the blanks:**

- (a) 6:40 can be read as \_\_\_\_\_.
- (b) 10 minutes to 5 is written as \_\_\_\_\_.
- (c) When the minute hand is on 7, it means it has covered \_\_\_\_\_ minutes.
- (d) When time is twenty five minutes past the hour then the minute hand is on \_\_\_\_\_.



Conceptual Learning

**Word search in both direction:**

F	E	B	R	U	A	R	Y	N	D
A	P	R	I	L	E	O	A	O	E
J	M	A	R	C	H	C	T	V	C
U	A	M	O	B	H	T	P	E	E
L	Y	K	Z	M	C	O	T	M	M
Y	J	U	N	E	P	B	R	B	B
A	U	G	U	S	T	E	I	E	E
L	A	N	D	U	R	R	P	R	R
J	A	N	U	A	R	Y	R	U	S
S	E	P	T	E	M	B	E	R	Q

January  
February  
March  
April  
May  
June  
July  
August  
September  
October  
November  
December



## Fun Time Activity

Problem Solving

**Write the time using a.m. or p.m.:**

- (a) 3 o'clock in the morning \_\_\_\_\_. (d) 1:30 at night \_\_\_\_\_.  
 (b) 10:00 at night \_\_\_\_\_. (e) Half past 3 in the afternoon \_\_\_\_\_.  
 (c) 3 o'clock in the morning \_\_\_\_\_. (f) 11:20 at night \_\_\_\_\_.



## Mental Math

Critical Thinking

- How many minutes does the minute hand take to move from 4 to 6?
- What time will it be
  - 2 hours after 10 in the night?
  - 6 hours before 12 noon?
- How many minutes are there in a day?
- How many hours are there in a week?
- How long will it take for you to
  - reach class 5?  
2 years / 20 years
  - reach Mumbai by plane from Agra?  
30 hours / 3 hours



## Maths Lab Activity

Conceptual Learning

**Learning objective:** To be able to convert different times in hours into minutes.

**Procedure:** 1. Divide yourselves into groups of 6. Choose a leader to conduct the activity. The leader asks the groups to fill in the following table:

Name	Date of birth	Age in year	Age in day	Hours since last birthday

- Fill in the name of each member of the group in the 'Name' column.
- Fill in the date of birth of each member of the group in the 'Date of birth' column.
- Similarly the 'Age in years' and 'Age in days' columns are also filled.
- Calculate the hours since your last birthday and write it in the 'Hours since last birthday' column.
- Repeat step 6 for the other members of your group.
- The group that correctly completes the task first is the winner.