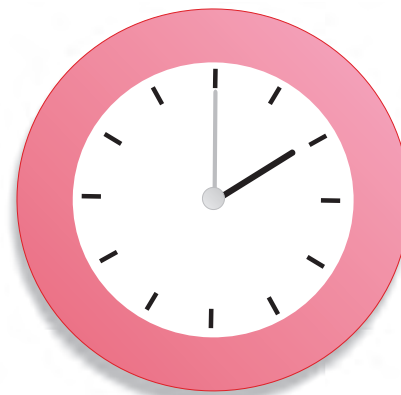# Time and Calendar

As you know that time is measured with the help of a clock. A clock generally has two hands. The short hand is hour hand and the long hand is minute hand.

A clock has 12 numbers from 1 to 12 on its face or dial. The hour hand takes one hour to move from one marking to the next marking. There are five small equal markings from one number to next number. Each small marking indicates one minute. Thus, minute hand takes five minutes to move from one number to next number. The minute hand takes 60 minutes or one hour to complete one round around the dial of the clock.

Therefore, **1 hour = 60 minutes.**

The time from one midnight to the next midnight is called one day. The hour hand takes 12 hours to complete 1 round. Since a day has 24 hours, hence, the hour hand completes two rounds in a day or in 24 hours, i.e.

1 day = 24 hours   1 hour = 60 minutes

1 day = 24 × 60 = 1440 minutes

Facts to Know

❖ Some clocks have third hand. It is thinnest hand of the clock and known as 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

Observe the places of hour and minute hands of the clock to know the time.

Here, the hour hand is little away from 12 and minute hand is on 3, so it is 3 × 5 = 15 minutes. Hence, the time is 15 minutes past 12 or "quarter past twelve" and it is written as 12:15.

Here, the hour hand is just between 9 and 10 and the minute hand is on 6, so it is 6 × 5 = 30 minutes. Hence, the time is 30 minutes past 9 or "half past nine" and it is written as 9:30.

Here, the hour hand is on 2 where as minute hand is on 12. Hence, the time is 2 o'clock and it is written as 2:00.
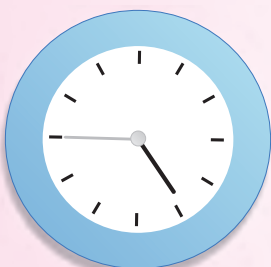
Here, the hour hand is quite away from 4 and nearer to 5 and minute hand is on 9, so it is 9 × 5 = 45 minutes. Hence, the time is 45 minutes past 4 or "quarter to five" and it is written as 4:45.

Here, the hour hand is a little near to 4 and the minute hand is on 10, so it is 10 × 5 = 50 minutes. Hence, the time is 50 minutes past 3 and it is written as 3:50.
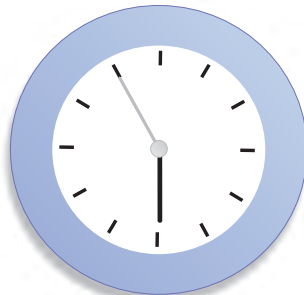
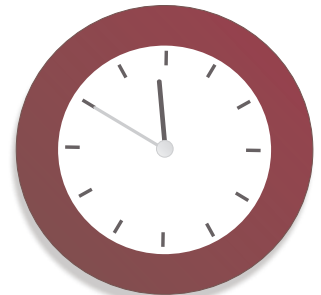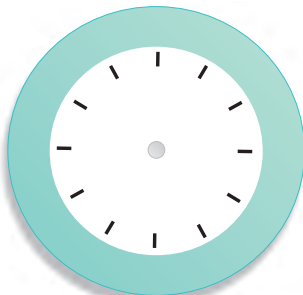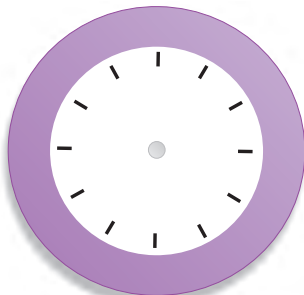**1. What time do these clocks show?**
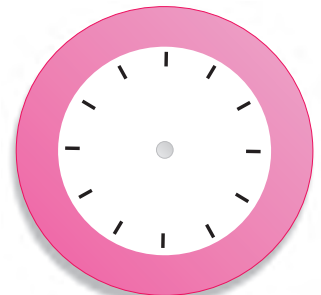
a.

b.

c.

d.

e.

f.

2. Draw the hands to show the time.
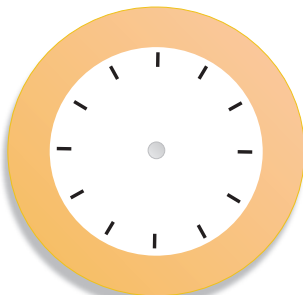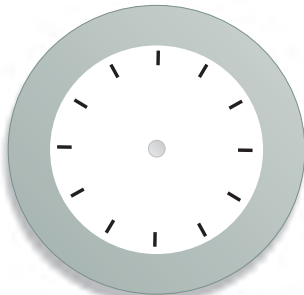
a. 4:35

b. 9:45

c. 3:20

d. 6:40

e. 12:50
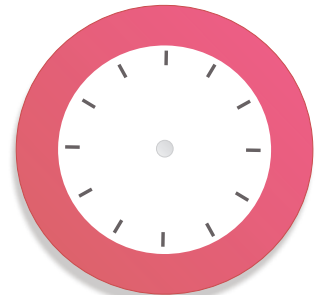
f. 8:30

A. M. and P. M.

A day starts from 12:00 o'clock midnight and has 24 hours. The whole day is divided into two equal parts, i.e. a.m. and p.m.

❖ The first 12 hours of the day (12:00 o'clock midnight to 12:00 o'clock noon) is known as ante meridiem and it is written as a.m.

❖ The next 12 hours of the day (12:00 o'clock midday or noon to 12:00 o'clock midnight) is known as post meridiem and it is written as p.m.

Converting Time

We know that

$$1 \text{ day} = 24 \text{ hours,}$$
$$1 \text{ hour} = 60 \text{ minutes and}$$
$$1 \text{ minute} = 60 \text{ seconds.}$$

Example I : Convert 8 days into hours.

Solution : In order to convert days into hours, multiply the number of days by 24.

i.e. 1 day = 24 hours.

Thus, 8 days = (24×8) hours = 192 hours.

Example II : Convert 12 days and 6 hours into hours.

Solution : 12 days 6 hours = (24×12) hours + 6 hours

= 288 hours + 6 hours

= 294 hours

Example III : Convert 5 hours into minutes.

Solution : 5 hours = (60×5) minutes

= 300 minutes

Example IV : Convert 6 minutes 45 seconds into seconds.

Solution : 6 minutes 45 seconds = 6 minutes + 45 seconds

= (60 × 6) seconds + 45 seconds

= 360 seconds + 45 seconds

= 405 seconds

Example V : Convert 4 hours 48 minutes into minutes.

Solution : 4 hours 48 minutes = 4 hours + 48 minutes

= (60 × 4) minutes + 48 minutes

= 240 minutes + 48 minutes

= 288 minutes

Exercise 10.2

1. **Fill in the blanks with 'a.m.' or 'p.m.'**

   a. 4:25 in the morning = 4:25 ....

   b. 8:45 in the evening = 8:45 ....

   c. 10:30 in the beforenoon = 10:30 ....

   d. 3:35 afternoon = 3:35 ....

2. **Change the following into minutes.**

   a. 8 hours   b. 13 hours

   c. 5 hours 25 minutes   d. 6 hours 50 minutes

3. **Convert the following into seconds.**

   a. 7 minutes   b. 25 minutes 25 seconds

   c. 45 minutes 15 seconds   d. 19 minutes 5 seconds

4. The school starts at 9 a.m. and remains open till 4 p.m. For how many hours does the school remain open ?

5. Now the time is 2:45. What will be the time after 30 minutes ?

6. 40 minutes ago, it was 12:35. What is the time now ?

7. I started to go south Delhi at 10 a.m. and reached there at 2 p.m. How many hours did it take for my journey ?

Calendar

We have studied the days of a week and the months of a year. Some months of the year have 31 days while the other months have 30 days. But, February is the only month of year, that has either 28 days or 29 days.

If February has 28 days, then the number of days in that year will be 365. If February has 29 days, then the number of days in that year will be 366. April, June, September and November have thirty days. All the rest months have thirty one days except February.

Example VI : Find the number of days in between 8th and 18th of a month.

Solution : Number of days in between two dates

= Different between two dates – 1

Then number of days = (18 – 8) – 1

= 10 – 1 = 9

Therefore, there are 9 days between 8th and 18th day of the month.

Example VII : Rama took leave from her office from 2nd to 20th of a month.

How many days did she take leave?

Solution : Number of days from a date to another date

= difference between given date + 1

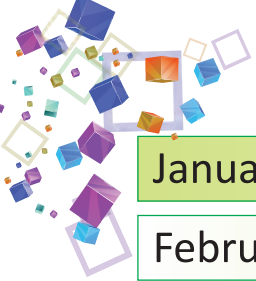Then, number of days = (20 – 2) + 1

18 + 1 = 19 days

Number of Days in Month

A year has 12 months. Each month has a particular name. The names of the months and the number of days in each month are given below :
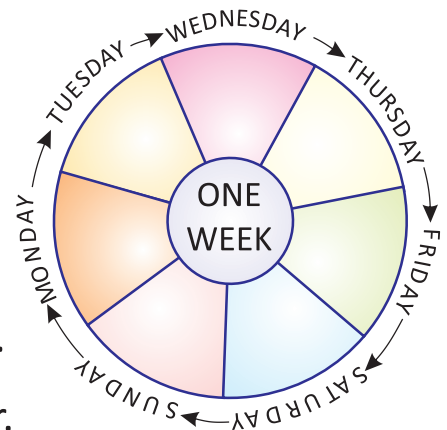
January	31	How many days make a year?	365 days
February	28/29	How many days a leap year has?	366 days
March	31	Which is the third month of a year?	March
April	30	Which is the fourth month of a year?	April
May	31	Which is the fifth month of a year?	May
June	30	Which is the sixth month of a year?	June
July	31	Which is the seventh month of a year?	July
August	31	Which the eighth month of a year?	August
September	30	Which is the ninth month of a year?	September
October	31	Which is the tenth month of a year?	October
November	30	Which is the eleventh month of a year?	November
December	31	Which is the last month of a year?	December

Days of the Week

Each month has at least 4 weeks. 7 days make a week. Each day has a particular name. The names of the days in a week are given around the circular Globe.

Always Remember :

365 days make	1 year.
12 months make	1 year.
30 days make	1 month.
7 days make	1 week.

Facts to Know

❖ One leap year has 366 days. The year divisible by 4 is called a leap year.

1. How many days are there in a leap year ?

2. List the months which have 31 days.

3. How many days does the month of February have in leap year?

4. Which month comes in the beginning of the year ?

5. List the months which have 30 days.

6. How many months make a year ?

7. In which month did you come to class III ?

8. Which month comes at the end of the year ?

9. How many days make a week ?

10. **Match the following.**

a. In an ordinary year   (i) one year.

b. One week has   (ii) 366 days.

c. A leap year has   (iii) February have 28 days.

d. 12 months make   (iv) divisible by 4.

e. A leap year is   (v) 7 days.

Points to Remember

- 1 day = 24 hours
- 1 hour = 60 minutes
- 1 minute = 60 seconds
- An ordinary year has 365 days.
- In a leap year, February contains 29 days.
- In a normal year, the February contains 28 days.
- April, June, September and November have 30 days.
- January, March, May, July, August, October and December have 31 days.
- A year has 12 months.
- If a year is divisible by 4, that year is a leap year.

1. **Multiple Choice Questions (MCQs)**

   Tick (✓) the correct option.

   a. A day start from 12 O'clock ....

       (i)   mid day   (ii)   midnight

       (iii) both of these   (iv)   none of these

   b. The month of April has ....

       (i)   28 days   (ii)   29 day

       (iii) 30 days   (iv)   31 days

   c. Which year is a leap year ?

       (i)   2013   (ii)   2014

       (iii) 2015   (iv)   2016

   d. The total number of minutes in a day are ....

       (i)   1440   (ii)   720

       (iii) 120   (iv)   1500

   e. The total number of days in year 2014 are ....

       (i)   364   (ii)   365

       (iii) 366   (iv)   367

2. **Show the following time in clock.**

   a. 8:15 p.m.   b.   4:20   c.   9:40

   d. 10:40   e.   9:15

3. **Change the following into minutes.**

   a. 7 hours   b. 5 hours 15 minutes

   c. 9 hours 10 minutes   d. 10 hours 45 minutes

4. Change the following into seconds.

a. 7 minutes
b. 5 minutes 30 seconds
c. 6 minutes 45 seconds
d. 8 minutes 35 seconds

5. Find the number of days between 15th June to 30th June.

6. Find the number of days from 12th August to 25th August.

7. How many days make 6 weeks ?

8. Which month comes between October and December ?

HOTS

Some years are given here. Identify whether they are leap year or not ?

1910   1950   1992   2000   2006   2010   2012

Lab Activity

Objective : To understand the movement of hands in clock.

Materials Required : Thick drawing paper with shape of clock on it in activity kit, a two-legged paper pin in Activity kit colours and scissors

Process :

❖ Take out the drawing paper with drawing at clock. Colour it and cut it out.

❖ Write 1 to 12 correctly on the circle starting with 12 and 6, then filling in the remaining numbers.

❖ From the extra paper cut two hands of the clock.

hours hand   minutes hand

❖ Attach the hands in the centre with the two-legged pin.

❖ Call the time— 3 o'clock and move the hands of the clock to show the time.

❖ You can move the hands by taking another time.