# 8 Time

## Exercise-1

1. 3, Hour, minute, second
2. 2 3. 1 4. 1 5. March, July, August, October
6. April, September, November 7. 29

## Exercise-2

1. (a) 07:30 hours (b) 06:30 hours (c) 02:00 p.m.
   (d) 20:30 hours (e) 10:00 a.m. (f) 11:05 hours
   (g) 12:05 hours (h) 08:05 p.m.
2. (a) 04:00 p.m. (b) 07:00 a.m. (c) 02:00 p.m.
   (d) 09:35 a.m. (e) 01:00 a.m. (f) 12:00 noon
   (g) 12:00 midnight (h) 02:00 a.m. (i) 08:00 p.m.
3. Number of years from 350 BC to 90 BC
   = 350 – 90 = 260

## Exercise-3

1. (a) 14 hours 15 minutes 16 seconds

   = (14 × 60) minutes + 15 minutes 16 seconds
   = 840 minutes + 15 minutes 16 seconds
   = 855 minutes 16 seconds
   = (855 × 60) seconds + 16 seconds
   = 51300 seconds + 16 seconds
   = 51316 seconds.

   (b) 7 hours 50 minutes = (7 × 60) minutes + 50 minutes
   = 420 minutes + 50 minutes
   = 470 minutes = (470 × 60) seconds
   = 28200 seconds

   (c) 8 hours 5 minutes 59 seconds
   = (8 × 60) minutes + 5 minutes 59 seconds
   = 480 minutes + 5 minutes 59 seconds
   = 485 minutes 59 seconds
   = (485 × 60) seconds + 59 seconds



Scanned with CamScanner

= 29100 seconds + 59 seconds

= 29159 seconds

2. (a) 5 weeks 4 days 10 hours = (5 × 7) days + 4 days 10 hours

= 35 days + 4 days 10 hours

= 39 days 10 hours

= (39 × 24) hours + 10 hours

= 936 hours + 10 hours

= 946 hours

(b) 6 weeks 7 hours = (6 × 7) days + 7 hours

= 42 days + 7 hours

= (42 × 24) hours + 7 hours

= 1008 hours + 7 hours

= 1015 hours

(c) 4 weeks 6 days 23 hours = (4 × 7) days + 6 days 23 hours

= 28 days + 6 days 23 hours

= 34 days 23 hours

= (34 × 24) hours + 23 hours

= 816 hours + 23 hours = 839 hours

3. (a) 95 days = (95 ÷ 30) months

= 3 months 5 days

```
      3
30) 95
   -90
     5
```

(b) 2700 seconds = (2700 ÷ 60) minutes

= 45 minutes

```
      45
60) 2700
   -240
    300
   -300
      0
```

(c) 625 hours = (625 ÷ 24) days

= 26 days 1 hour

Now, we divide 26 days by 7 to convert it into weeks.

26 days = (26 ÷ 7) weeks

= 3 weeks 5 days

Thus, 625 hours = 3 weeks 5 days 1 hour

```
      26
24) 625
   -48
    145
   -144
      1
```



Scanned with CamScanner

(d) 1268 minutes = (1268 ÷ 60) hours

= 21 hours 8 minutes

$$\begin{array}{r} 21 \\ 60\overline{)1268} \\ -120 \\ \hline 68 \\ -60 \\ \hline 8 \end{array}$$

(e) 3580 seconds = (3580 ÷ 60) minutes

= 59 minutes 40 seconds

$$\begin{array}{r} 59 \\ 60\overline{)3580} \\ -300 \\ \hline 580 \\ -540 \\ \hline 40 \end{array}$$

(f) 185 days = (185 ÷ 30) months

= 6 months 5 days

$$\begin{array}{r} 6 \\ 30\overline{)185} \\ -180 \\ \hline 5 \end{array}$$

(g) 5000 seconds = (5000 ÷ 60) minutes

= 83 minutes 20 seconds

Now, 83 minutes = (83 ÷ 60) hour

= 1 hour 23 minutes

Thus, 5000 seconds = 1 hour 23 minutes 20 seconds

$$\begin{array}{r} 83 \\ 60\overline{)5000} \\ -480 \\ \hline 200 \\ -180 \\ \hline 20 \end{array}$$

(h) 201 days = (201 ÷ 30) months

= 6 months 21 days

Now, 21 days = (21 ÷ 7) weeks = 3 weeks

Thus, 201 days = 6 months 3 weeks

$$\begin{array}{r} 6 \\ 30\overline{)201} \\ -180 \\ \hline 21 \end{array}$$

## Exercise-4

1. (a) 4 hours 12 minutes 34 seconds + 12 hours 15 minutes 54 seconds = 16 hours 28 minutes 28 seconds

| Hours | Minutes | Seconds |
|---|---|---|
| | ① | |
| 4 | 12 | 34 |
| + 12 | 15 | 54 |
| 16 | 28 | 28 |

In the seconds column,
(34 + 54) seconds = 88 seconds
88 seconds = (60 + 28) seconds
= 1 minute + 28 seconds
carry over 1 minute to minutes column and write 28 in the seconds column.



Scanned with CamScanner

(b) 9 days 14 hours + 5 days 12 hours
= 15 days 2 hours

| Days | Hours |
|---|---|
| 1 | |
| 9 | 14 |
| + 5 | 12 |
| 15 | 02 |

In the hours column.
(14 + 12) hours = 26 hours.
26 hours = 24 hours + 2 hours
= 1 day + 2 hours
write 2 in hours column and carryover 1 day to the days column.

(c) 12 years 7 months + 18 months
= 14 years 1 month

| Years | Months |
|---|---|
| 2 | |
| 12 | 7 |
| + 00 | 18 |
| 14 | 01 |

In the months column,
(7 + 18) months = 25 months
= 24 months + 1 month
= 2 years + 1 month
write 1 in the months column and carryover 2 to the years column.

2. (a) 9 days 7 hours – 7 days 14 hours
= 1 day 17 hours

| Days | Hours |
|---|---|
| 8 | 31 |
| ~~9~~ | ~~7~~ |
| – 7 | 14 |
| 1 | 17 |

In the hours column, 7 < 14.
So, we borrow 1 day from days column.
It reduces 9 days to 8 days.
Also, (24 hours + 7 hours) = 31 hours
Now subtracting, (31 – 14) hours = 17 hours
and (8 – 7) days = 1 day

(b) 8 hours 35 minutes 18 seconds – 5 hours 24 minutes 34 seconds
= 3 hours 10 minutes 44 seconds

| Hours | Minutes | Seconds |
|---|---|---|
| | 34 | 78 |
| 8 | ~~35~~ | ~~18~~ |
| – 5 | 24 | 34 |
| 3 | 10 | 44 |

In the seconds column, 18 < 34.
So, we borrow 1 minute from the minutes column,
It reduces 35 minutes to 34 minutes.
Also (18 + 60) seconds = 78 seconds.
Now subtracting,
(78 – 34) seconds = 44 seconds,
(34 – 24) minutes = 10 minutes
and (8 – 5) hours = 3 hours



Scanned with CamScanner

(c) 10 years 5 months − 2 years 11 months
= 7 years 6 months

| Years | Months |
|---|---|
| 9 | 17 |
| ~~10~~ | ~~5~~ |
| − 2 | 11 |
| 7 | 6 |

In the months column, 5 < 11.
So, we borrow 1 year (12 months) from the years column.
It reduces 10 years to 9 years.
Also, (5 + 12) months = 17 months.
Now subtracting, (17 − 11) months = 6 months
and (9 − 2) years = 7 years

## Exercise-5

1. (a) **Step 1:** Multiply the days:

6 days × 3 = 18 days

Now, 18 days = 14 days + 4 days

= 2 × 7 days + 4 days

= 2 weeks + 4 days

| weeks | days |
|---|---|
| 2 | |
| 3 | 6 |
| | × 3 |
| 11 | 4 |

Write 4 in the days column and carry over 2 to the weeks column.

**Step 2:** Multiply the weeks:

3 weeks × 3 = 9 weeks

9 weeks + 2 weeks (carried over) = 11 weeks

Write 11 in the weeks column.

Thus, 3 weeks 6 days × 3 = 11 weeks 4 days

(b)

| weeks | days |
|---|---|
| 2 | |
| 5 | 4 |
| | × 5 |
| 27 | 6 |

(c)

| weeks | days |
|---|---|
| 1 | |
| 6 | 2 |
| | × 6 |
| 37 | 5 |

(d)

| Hours | Minutes | Seconds |
|---|---|---|
| 1 | 2 | |
| 6 | 15 | 20 |
| | × | 7 |
| | | 140 |
| | | (2 × 60 + 20) |
| | 107 | 20 |
| | (1 × 60 + 47) | |
| 43 | 47 | 20 |

(e)

| Hours | Minutes | Seconds |
|---|---|---|
| 2 | 2 | |
| 11 | 44 | 55 |
| | × | 3 |
| | | 165 |
| | | (2 × 60 + 45) |
| | 134 | 45 |
| | (2 × 60 + 14) | |
| 35 | 14 | 45 |



Scanned with CamScanner

(f)

| Weeks | Days | Hours |
|---|---|---|
| ③ | ② | |
| 3 | 5 | 14 |
| | × | 5 |
| | | 70 |
| | | (2 × 24 + 22) |
| | 27 | 22 |
| | (3 × 7 + 6) | |
| 18 | 6 | 22 |

(g)

| Weeks | Days | Hours |
|---|---|---|
| ② | ② | |
| 6 | 5 | 16 |
| | × | 3 |
| | | 48 |
| | | (2 × 24) |
| | 17 | 00 |
| | (2 × 7 + 3) | |
| 20 | 03 | 00 |

(h)

| Weeks | Days | Hours |
|---|---|---|
| ④ | | |
| 8 | 5 | 3 |
| | × | 6 |
| | 30 | 18 |
| | (4 × 7 + 2) | |
| 52 | 2 | 18 |

2. (a)

| | 5 | 1 | 8 |
|---|---|---|---|
| | Weeks | Days | Hours |
| 3 | 15 | 4 | 00 |
| | − 15 | | |
| | 0 | 4 | |
| | | − 3 | |
| | | 1 → | 24 |
| | | | − 24 |
| | | | 00 |

Thus, 15 weeks 4 days ÷ 3 = 5 weeks 1 day 8 hours

(b)

| | 5 | 23 |
|---|---|---|
| | hours | minutes |
| 15 | 80 | 45 |
| | − 75 | |
| | 5 → | 300 |
| | | 345 |
| | | − 345 |
| | | 0 |

Thus, 80 hours 45 minutes ÷ 15 = 5 hours 23 minutes



Scanned with CamScanner

(c)

| | hours | minutes |
|---|---|---|
| | 6 | 59 |
| 7 | 48 | 53 |
| | − 42 | |
| | 6 → | 360 |
| | | 413 |
| | | − 413 |
| | | 0 |

Thus, 48 hours 53 minutes ÷ 7
= 6 hours 59 minutes

(d)

| | hours | minutes | seconds |
|---|---|---|---|
| | 3 | 13 | 20 |
| 7 | 22 | 33 | 20 |
| | − 21 | | |
| | 1 → | 60 | |
| | | 93 | |
| | | − 91 | |
| | | 2 → | 120 |
| | | | 140 |
| | | | − 140 |
| | | | 0 |

Thus, 22 hours 33 minutes 20 seconds ÷ 7
= 3 hours 13 minutes 20 seconds.

(e)

| | hours | minutes | seconds |
|---|---|---|---|
| | 10 | 31 | 16 |
| 4 | 42 | 5 | 4 |
| | − 40 | | |
| | 2 → | 120 | |
| | | 125 | |
| | | − 124 | |
| | | 1 → | 60 |
| | | | 64 |
| | | | − 64 |
| | | | 0 |

Thus, 42 hours 5 minutes 4 seconds
÷ 4 = 10 hours 31 minutes 16 seconds



Scanned with CamScanner

(f)

| | Weeks | Days | Hours |
|---|---|---|---|
| | 2 | 3 | 2 |
| 6 | 14 | 4 | 12 |
| | − 12 | | |
| | 2 → | 14 | |
| | | 18 | |
| | | − 18 | |
| | | 0 | 12 |
| | | | − 12 |
| | | | 0 |

Thus, 14 weeks 4 days 12 hours ÷ 6
= 2 weeks 3 days 2 hours

(g)

| | hours | minutes | seconds |
|---|---|---|---|
| | 4 | 53 | 4 |
| 10 | 48 | 50 | 40 |
| | − 40 | | |
| | 8 → | 480 | |
| | | 530 | |
| | | − 530 | |
| | | 0 | 40 |
| | | | − 40 |
| | | | 00 |

Thus, 48 hours 50 minutes 40 seconds ÷ 10
= 4 hours 53 minutes 4 seconds

(h)

| | Weeks | Days | Hours |
|---|---|---|---|
| | 4 | 3 | 4 |
| 3 | 13 | 2 | 12 |
| | − 12 | | |
| | 1 → | 7 | |
| | | 9 | |
| | | − 9 | |
| | | 0 | 12 |
| | | | − 12 |
| | | | 0 |

Thus, 13 weeks 2 days 12 hours ÷ 3
= 4 weeks 3 days 4 hours

**Puzzle**

30 minutes past 11



Scanned with CamScanner

# Exercise-6

1. (a) First convert the time into 24 hour clock time.
07 : 30 a.m. = 07 : 30 hours
Now arrange the units columnwise and add.
We get, 13 hours 44 minutes.
convert it into 12 hour clock time.
13 : 44 hours = 13 : 44 – 12 : 00 = 1 : 44 p.m.
The time 6 hours 14 minutes after 7 : 30 a.m. will be 01 : 44 p.m.

| Hours | Minutes |
|---|---|
| 7 | 30 |
| + 6 | 14 |
| 13 | 44 |

(b) 12 : 00 noon = 12 : 00 hours
The time 3 hours 12 minutes after
12 : 00 hours will be 15 : 12 hours
or 03 : 12 p.m.

| Hours | Minutes |
|---|---|
| 12 | 00 |
| + 3 | 12 |
| 15 | 12 |

2. (a) First convert the time into 24 hour clock time
1 : 00 p.m. = 13 : 00 hours.
Now subtract 1 hour 25 minutes from it.
In the minutes column, 00 < 25
So, we borrow 1 hour from the hours column.
It reduces 13 hours to 12 hours.
Also, (00 + 60) minutes = 60 minutes
Now subtracting , (60 – 25) minutes = 35 minutes
(12 – 1) hours = 11 hours
So, the time 1 hour 25 minutes before 1.00 p.m. was 11 : 35 hours or 11 : 35 a.m.

| Hours | Minutes |
|---|---|
| 12 | 60 |
| ~~13~~ | ~~00~~ |
| – 1 | 25 |
| 11 | 35 |

(b) 12 midnight = 00 : 00 hours = 24 : 00 hours
Since 00 minutes < 55 minutes.
So, we borrow 1 hour from hours column
leaving 23 hours.
Also, (60 + 00) minutes = 60 minutes
Now subtracting 2 hours 55 minutes from 23 hours 60 minutes.
we get, 21 : 05 hours = 09 : 05 p.m
So, the time 2 hours 55 minutes before 12 midnight was 09 : 05 p.m.

| Hours | Minutes |
|---|---|
| 23 | 60 |
| ~~24~~ | ~~00~~ |
| – 2 | 55 |
| 21 | 05 |

3. Rahul starts doing his homework at 05 : 30 p.m. or 17 : 30 hours.
He completes his homework after 1 hour 30 minutes.
So, we have to add 17 hours 30 minutes to 1 hour 30 minutes.
(30 + 30) minutes = 60 minutes = 1 hour
write 00 in the minutes column and
carryover 1 to the hours column.
(1 + 17 + 1) hours = 19 hours.

| Hours | Minutes |
|---|---|
| 1 | |
| 17 | 30 |
| + 1 | 30 |
| 19 | 00 |



Scanned with CamScanner

So, we get, 19 hours 00 minutes = 19 : 00 hours = 07 : 00 p.m.
Rahul completes his homework at 07 : 00 p.m.

4. Ms Gauri went to the market at 11 : 30 a.m. or 11 : 30 hours.
She returned after 2 hours 25 minutes.
So, we have to add 11 hours 30 minutes to 2 hours 25 minutes. We get, 13 hours 55 minutes.
Ms Gauri returned at 13 : 55 hours or 01 : 55 p.m. from the market.

| Hours | Minutes |
|---|---|
| 11 | 30 |
| + 2 | 25 |
| 13 | 55 |

5. 06 : 30 p.m. = 18 : 30 hours,
The time 45 minutes before 18 : 30 hours was 17 : 45 hours or 05 : 45 p.m.

| Hours | Minutes |
|---|---|
| 17 | 90 |
| ~~18~~ | ~~30~~ |
| − 00 | 45 |
| 17 | 45 |

Since 30 minutes < 45 minutes, so, we borrow 1 hour from the hours column.
It reduces 18 hours to 17 hours. Also (30 + 60) minutes = 90 minutes.

## Exercise-7

1. First convert the time into 24 hour clock time.
09 : 50 a.m. = 09 : 50 hours = 9 hours 50 minutes
07 : 10 p.m. = 19 : 10 hours = 19 hours 10 minutes
Now subtracting 9 hours 50 minutes from 19 hours 10 minutes.
We get, 9 hours 20 minutes.

| Hours | Minutes |
|---|---|
| 18 | 70 |
| ~~19~~ | ~~10~~ |
| − 9 | 50 |
| 9 | 20 |

The time duration of Mrs Sharma's office is 9 hours 20 minutes.

2. Number of days for which Bobby was in New Zealand in June ($10^{th}$ is included)
= 30 − 9 = 21
Number of days in July = 31
Number of days in August = 56 − (21 + 31) = 56 − 52 = 4
Thus, Bobby came back home on 5th August.

3. Total number of days in May = 31
Period from 12th May to 31st May = 20 days
Period from 1st June to 23rd June = 23 days
Total days = (20 + 23) days = 43 days.
The school remain closed for 43 days.

## Mental Maths Corner

1. (c) 2. (b) 3. (b) 4. (b)



Scanned with CamScanner

# Review Exercise

1. (a) 324 minutes = (324 ÷ 60) hours
= 5 hours 24 minutes

$$\begin{array}{r} 5 \text{ hours} \\ 60\overline{)324} \\ -300 \\ \hline 24 \text{ minutes} \end{array}$$

(b) 4 weeks 2 days 3 hours = (4 × 7) days + 2 days 3 hours
= 28 days + 2 days 3 hours = 30 days 3 hours
= (30 × 24) hours + 3 hours
= 720 hours + 3 hours = 723 hours

(c) 264 days = (264 ÷ 30) months = 8 months 24 days
Now 24 days = (24 ÷ 7) weeks = 3 weeks 3 days
Thus, 264 days = 8 months 3 weeks 3 days.

(d) 1296 seconds = (1296 ÷ 60) minutes
= 21 minutes 36 seconds

$$\begin{array}{r} 21 \\ 60\overline{)1296} \\ -120 \\ \hline 96 \\ -60 \\ \hline 36 \end{array}$$

2. (a) 13 hours 24 minutes + 6 hours 16 minutes
= 19 hours 40 minutes

| Hours | Minutes |
|---|---|
| 13 | 24 |
| + 6 | 16 |
| 19 | 40 |

(b) 7 years 11 months + 8 years 5 months
= 16 years 4 months

| Years | Months |
|---|---|
| 1 | |
| 7 | 11 |
| + 8 | 05 |
| 16 | 04 |

(c) 7 years 1 month – 5 years 6 months
= 1 year 7 months

| Years | Months |
|---|---|
| 6 | 13 |
| ~~7~~ | ~~1~~ |
| – 5 | 6 |
| 1 | 7 |

(d)

| Hours | Minutes | Seconds |
|---|---|---|
| 1 | 2 | |
| 6 | 15 | 25 |
| | × | 6 |
| | | 150 |
| | | (2 × 60 + 30) |
| | 92 | 30 |
| | (1 × 60 + 32) | |
| 37 | 32 | 30 |

Thus, 6 hours 15 minutes 25 seconds × 6 = 37 hours 32 minutes 30 seconds



Scanned with CamScanner

3. 07 : 15 a.m. = 07 : 15 hours = 7 hours 15 minutes

It takes 3 hours 15 minutes to reach Agra.

So, It will reach Agra at 10 : 30 hours or 10 : 30 a.m.

| Hours | Minutes |
|---|---|
| 7 | 15 |
| + 3 | 15 |
| 10 | 30 |

4. Period from 14th March to 31st March = 18 days

Period from 1st April to 30th April = 30 days

Period from 1st May to 26th May = 26 days

Total days = (18 + 30 + 26) days = 74 days

Divya's father was on official tour for 74 days.

5. 12 : 10 p.m. = 12 : 10 hours = 12 hours 10 minutes.

Radhika studied for 3 hours 30 minutes and finished her studies at 12 : 10 p.m.

Thus, she started her study at 8 : 40 hours or 08 : 40 a.m.

| Hours | Minutes |
|---|---|
| 11 | 70 |
| ~~12~~ | ~~10~~ |
| − 3 | 30 |
| 8 | 40 |

6. Departure time = 09 : 10 a.m. = 09 : 10 hours

Arrival time at Bhopal = 07 : 15 p.m. = 19 : 15 hours

Time duration

= 19 : 15 hours – 09 : 10 hours

= 19 hours 15 minutes – 9 hours 10 minutes

= 10 hours 05 minutes

| Hours | Minutes |
|---|---|
| 19 | 15 |
| − 9 | 10 |
| 10 | 05 |

The time duration of Journey from Delhi to Bhopal is 10 hours 5 minutes.

7. Departure time from Delhi = 04 : 50 hours

= 04 : 50 a.m.

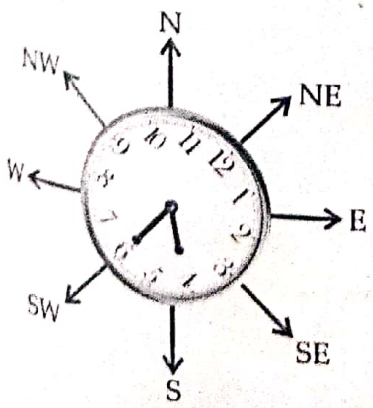
Arrival time at Bengaluru = 07 : 25 hours

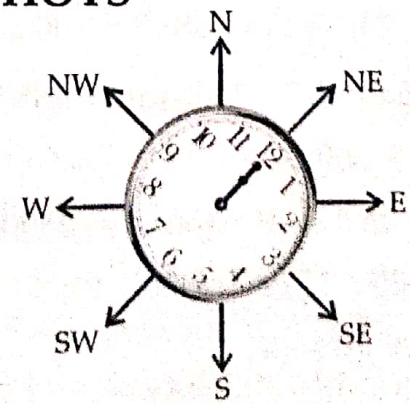
= 07 : 25 a.m.

It takes 2 hours 35 minutes to reach Bengaluru.

| Hours | Minutes |
|---|---|
| 6 | 85 |
| ~~7~~ | ~~25~~ |
| − 4 | 50 |
| 2 | 35 |

## HOTS




North-East



Scanned with CamScanner