

6 Time

Exercise-1

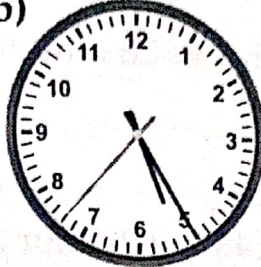
1. (b) 7:50:57

(c) 5:45:57

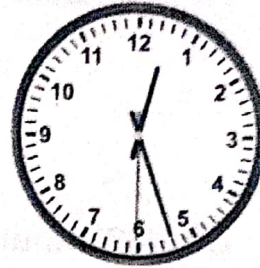
2. (a)



(b)



(c)



3. (a) 180 (b) 35 (c) 366 (d) 14

Fun Time

1. (a) p.m. (b) p.m. (c) a.m. (d) p.m.

2. (a) 5:30 a.m. (b) 11:30 p.m. (c) 4:15 p.m. (d) 1:35 p.m.

3. (a) 9:40 p.m. (b) 1:00 p.m. (c) 3:20 p.m.

Exercise-2

1. To convert hours to minutes, we multiply by 60.

(a) 9 hours = 9×60 minutes = 540 minutes

(b) 11 hours = 11×60 minutes = 660 minutes

(c) 3 hours 25 minutes = $(3 \times 60 + 25)$ minutes
= $(180 + 25)$ minutes = 205 minutes

(d) 6 hours 17 minutes = $(6 \times 60 + 17)$ minutes
= $(360 + 17)$ minutes = 377 minutes

(e) 15 hours 5 minutes = $(15 \times 60 + 5)$ minutes
= $(900 + 5)$ minutes = 905 minutes

(f) 5 hours 20 minutes = $(5 \times 60 + 20)$ minutes
= $(300 + 20)$ minutes = 320 minutes

2. To convert minutes to seconds, we multiply by 60.

(a) 4 minutes = 4×60 seconds = 240 seconds

(b) 17 minutes = 17×60 seconds = 1020 seconds

(c) 25 minutes = 25×60 seconds = 1500 seconds

$$(d) \text{ 10 minutes 17 seconds} = (10 \times 60 + 17) \text{ seconds} \\ = (600 + 17) \text{ seconds} = 617 \text{ seconds}$$

$$(e) \text{ 36 minutes 48 seconds} = (36 \times 60 + 48) \text{ seconds} \\ = (2160 + 48) \text{ seconds} = 2208 \text{ seconds}$$

3. To convert minutes to hours, we divide by 60.

$$(a) \text{ 328 minutes} = (328 \div 60) \text{ hours} \\ = 5 \text{ hours 28 minutes}$$

$$\begin{array}{r} 5 \text{ hours} \\ 60 \overline{) 328} \\ \underline{-300} \\ 28 \text{ minutes} \end{array}$$

$$(b) \text{ 487 minutes} = (487 \div 60) \text{ hours} = 8 \text{ hours 7 minutes}$$

$$(c) \text{ 726 minutes} = (726 \div 60) \text{ hours} = 12 \text{ hours 6 minutes}$$

$$(d) \text{ 156 minutes} = (156 \div 60) \text{ hours} = 2 \text{ hours 36 minutes}$$

$$(e) \text{ 1025 minutes} = (1025 \div 60) \text{ hours} = 17 \text{ hours 5 minutes}$$

$$(f) \text{ 1515 minutes} = (1515 \div 60) \text{ hours} = 25 \text{ hours 15 minutes}$$

4. To convert seconds to minutes, we divide by 60.

$$(a) \text{ 258 seconds} = (258 \div 60) \text{ minutes} \\ = 4 \text{ minutes 18 seconds}$$

$$\begin{array}{r} 4 \text{ minutes} \\ 60 \overline{) 258} \\ \underline{-240} \\ 18 \text{ seconds} \end{array}$$

$$(b) \text{ 624 seconds} = (624 \div 60) \text{ minutes} = 10 \text{ minutes 24 seconds}$$

$$(c) \text{ 817 seconds} = (817 \div 60) \text{ minutes} = 13 \text{ minutes 37 seconds}$$

$$(d) \text{ 1200 seconds} = (1200 \div 60) \text{ minutes} = 20 \text{ minutes}$$

$$(e) \text{ 1428 seconds} = (1428 \div 60) \text{ minutes} = 23 \text{ minutes 48 seconds}$$

$$(f) \text{ 1870 seconds} = (1870 \div 60) \text{ minutes} = 31 \text{ minutes 10 seconds}$$

Exercise-3

1. (a) $9 \text{ years} = 9 \times 12 \text{ months} = 108 \text{ months}$

(b) $7 \text{ years } 6 \text{ months} = (7 \times 12 + 6) \text{ months} = (84 + 6) \text{ months} = 90 \text{ months}$

(c) $10 \text{ years } 4 \text{ months} = (10 \times 12 + 4) \text{ months} = (120 + 4) \text{ months} = 124 \text{ months}$

(d) $12 \text{ years } 2 \text{ months} = (12 \times 12 + 2) \text{ months} = (144 + 2) \text{ months} = 146 \text{ months}$

2. (a) $6 \text{ weeks} = 6 \times 7 \text{ days} = 42 \text{ days}$

(b) $9 \text{ weeks } 3 \text{ days} = (9 \times 7 + 3) \text{ days} = (63 + 3) \text{ days} = 66 \text{ days}$

(c) $12 \text{ weeks } 2 \text{ days} = (12 \times 7 + 2) \text{ days} = (84 + 2) \text{ days} = 86 \text{ days}$

(d) $15 \text{ weeks } 5 \text{ days} = (15 \times 7 + 5) \text{ days} = (105 + 5) \text{ days} = 110 \text{ days}$

3. (a) 60 months = $(60 \div 12)$ years = 5 years
 (b) 242 months = $(242 \div 12)$ years = 20 years 2 months

$$\begin{array}{r} 20 \text{ years} \\ 12 \overline{) 242} \\ \underline{-24} \\ 02 \\ \underline{-0} \\ \hline 2 \text{ months} \end{array}$$

- (c) 600 months = $(600 \div 12)$ years = 50 years
 (d) 780 months = $(780 \div 12)$ years = 65 years
 4. (a) 96 days = $(96 \div 7)$ weeks = 13 weeks 5 days

$$\begin{array}{r} 13 \text{ weeks} \\ 7 \overline{) 96} \\ \underline{-7} \\ 26 \\ \underline{-21} \\ \hline 5 \text{ days} \end{array}$$

- (b) 105 days = $(105 \div 7)$ weeks = 15 weeks
 (c) 198 days = $(198 \div 7)$ weeks = 28 weeks 2 days
 (d) 240 days = $(240 \div 7)$ weeks = 34 weeks 2 days

Exercise-4

1. (a) 03 : 00 a.m. = 03 : 00 hours (b) 05 : 15 a.m. = 05 : 15 hours
 (c) 10 : 42 a.m. = 10 : 42 hours (d) 12 : 15 p.m. = 12 : 15 hours
 (e) 03 : 45 p.m. = $03 : 45 + 12 : 00 = 15 : 45$ hours
 (f) 05 : 05 p.m. = $05 : 05 + 12 : 00 = 17 : 05$ hours
 (g) 08 : 16 p.m. = $08 : 16 + 12 : 00 = 20 : 16$ hours
 (h) 09 : 32 p.m. = $09 : 32 + 12 : 00 = 21 : 32$ hours
 (i) 10 : 56 p.m. = $10 : 56 + 12 : 00 = 22 : 56$ hours
 2. (a) 05 : 30 hours = 05 : 30 a.m. (b) 00 : 25 hours = 12 : 25 a.m.
 (c) 10 : 41 hours = 10 : 41 a.m. (d) 11 : 58 hours = 11 : 58 a.m.
 (e) 12 : 42 hours = 12 : 42 p.m.
 (f) 14 : 22 hours = $14 : 22 - 12 : 00 = 02 : 22$ p.m.
 (g) 16 : 28 hours = $16 : 28 - 12 : 00 = 04 : 28$ p.m.
 (h) 20 : 47 hours = $20 : 47 - 12 : 00 = 08 : 47$ p.m.
 (i) 23 : 05 hours = $23 : 05 - 12 : 00 = 11 : 05$ p.m.

Exercise-5

1. (a) 3 hours 28 minutes + 7 hours 10 minutes
= 10 hours 38 minutes

Hours	Minutes
3	28
+ 7	10
10	38

- (b) Add minutes :

$$\begin{aligned} (35 + 40) \text{ minutes} &= 75 \text{ minutes} \\ &= 60 \text{ minutes} + 15 \text{ minutes} \\ &= 1 \text{ hour} + 15 \text{ minutes} \end{aligned}$$

Hours	Minutes
① 5	35
+ 15	40
21	15

Carry over 1 to hours column and write 15 in the minutes column.

Add hours : (1 + 5 + 15) hours = 21 hours

5 hours 35 minutes + 15 hours 40 minutes = 21 hours 15 minutes

- (c) Add minutes :

$$\begin{aligned} (15 + 50) \text{ minutes} &= 65 \text{ minutes} \\ &= 60 \text{ minutes} + 5 \text{ minutes} \\ &= 1 \text{ hour} + 5 \text{ minutes} \end{aligned}$$

Hours	Minutes
① 14	15
+ 18	50
33	05

Carry over 1 to the hours column and write 05 in the minutes column.

Add hours : (1 + 14 + 18) hours = 33 hours

14 hours 15 minutes + 18 hours 50 minutes = 33 hours 5 minutes.

- (d) Add seconds : (52 + 15) seconds = 67 seconds

Also, 60 seconds = 1 minute

$$\begin{aligned} \therefore 67 \text{ seconds} &= 60 \text{ seconds} + 7 \text{ seconds} \\ &= 1 \text{ minute} + 7 \text{ seconds} \end{aligned}$$

Minutes	Seconds
① 11	52
+ 23	15
35	07

Carry over 1 to the minutes column and write 07 in seconds column.

Add minutes : (1 + 11 + 23) minutes = 35 minutes

11 minutes 52 seconds + 23 minutes 15 seconds
= 35 minutes 7 seconds

- (e) 7 minutes + 5 minutes 42 seconds = 12 minutes 42 seconds

- (f) 8 hours 22 minutes + 16 hours 28 minutes = 24 hours 50 minutes

2. (a) 11 hours 20 minutes - 2 hours 5 minutes
= 9 hours 15 minutes

Hours	Minutes
11	20
- 2	05
9	15

(b) **Subtract minutes :**

As $00 < 20$,

So, we borrow 1 hour = 60 minutes from the hours column.

$$(60 + 00) \text{ minutes} = 60 \text{ minutes}$$

$$\therefore (60 - 20) \text{ minutes} = 40 \text{ minutes}$$

Write 40 in the minutes column.

Subtract hours :

Now, we have 14 hours left.

$$(14 - 7) \text{ hours} = 7 \text{ hours}$$

$$\therefore 15 \text{ hours} - 7 \text{ hours } 20 \text{ minutes} = 7 \text{ hours } 40 \text{ minutes.}$$

(c) $12 \text{ hours } 40 \text{ minutes} - 3 \text{ hours } 15 \text{ minutes} = 9 \text{ hours } 25 \text{ minutes}$

(d) **Subtract seconds :** As $15 < 28$.

So, we borrow 1 minute = 60 seconds from the minutes column.

$$(60 + 15) \text{ seconds} = 75 \text{ seconds}$$

$$\therefore (75 - 28) \text{ seconds} = 47 \text{ seconds}$$

Subtract minutes :

$$(15 - 8) \text{ minutes} = 7 \text{ minutes}$$

$$\therefore 16 \text{ minutes } 15 \text{ seconds} - 8 \text{ minutes } 28 \text{ seconds} = 7 \text{ minutes } 47 \text{ seconds}$$

Hours	Minutes
14	60
15	00
- 7	20
7	40

Minutes	Seconds
15	75
16	15
- 8	28
7	47

3. $7 : 30 \text{ a.m. to } 8 : 00 \text{ a.m.} = 30 \text{ minutes}$

$8 : 00 \text{ a.m. to } 12 : 00 \text{ noon} = 4 \text{ hours}$

$12 : 00 \text{ noon to } 2 : 00 \text{ p.m.} = 2 \text{ hours}$

Total time = 6 hours 30 minutes

Hence, total time spent in school = 6 hours 30 minutes.

4. Total time spent by Aarushi

= 25 minutes + 1 hour 10 minutes + 45 minutes

= 2 hours 20 minutes.

Hours	Minutes
1	25
00	10
01	45
+ 00	20
2	20

Mental Maths Corner

1. (a) 11 minutes to 1 = 12 : 49

2. (d) $5 : 33 \text{ p.m.} = 5 : 33 + 12 : 00 = 17 : 33 \text{ hours}$

3. (b) $21 : 22 \text{ hours} = 21 : 22 - 12 : 00 = 9 : 22 \text{ p.m.}$

4. (c) 1 hour 53 minutes

Review Exercise

- $7 \text{ hours} = (7 \times 60) \text{ minutes} = 420 \text{ minutes}$
 - $5 \text{ hours } 12 \text{ minutes} = (5 \times 60 + 12) \text{ minutes} = (300 + 12) \text{ minutes} = 312 \text{ minutes}$
- $12 \text{ minutes} = (12 \times 60) \text{ seconds} = 720 \text{ seconds}$
 - $2 \text{ hours} = (2 \times 60) \text{ minutes} = (2 \times 60 \times 60) \text{ seconds} = 7200 \text{ seconds}$
 - $25 \text{ minutes } 10 \text{ seconds} = (25 \times 60 + 10) \text{ seconds} = (1500 + 10) \text{ seconds} = 1510 \text{ seconds}$
- $175 \text{ minutes} = (175 \div 60) \text{ hours} = 2 \text{ hours } 55 \text{ minutes}$
 - $1190 \text{ minutes} = (1190 \div 60) \text{ hours} = 19 \text{ hours } 50 \text{ minutes}$
- $281 \text{ seconds} = (281 \div 60) \text{ minutes} = 4 \text{ minutes } 41 \text{ seconds}$
 - $1725 \text{ seconds} = (1725 \div 60) \text{ minutes} = 28 \text{ minutes } 45 \text{ seconds}$
- Total time spent by Manisha = 45 minutes + 1 hour 20 minutes

+ 35 minutes	Hours	Minutes
= 2 hours 40 minutes	①	
	00	45
	01	20
	+ 00	35
	2	40

So, Manisha spent 2 hours 40 minutes in all those activities.

HOTS



We see that, sum of the numbers in each part = 13

Maths Lab Activity

