Tender Heart High School, Sec-33B, Chandigarh

Class - IV
Subject - Mathematics
Date - 11.11.2024
Teacher - Ms. Sushma

Chapter - 11
Time

* Changing 12-hour clock time to 24-hour clock time :→

If the time is between :-

⇒ 1:00 am and 12:59 p.m., there will be no change in figures. Remove the a.m./p.m. and write hours after the given time.

⇒ 1:00 p.m. and 11:59 p.m, add 12 hours to the given time.

⇒ 12 midnight and 12:59 a.m., subtract 12 hours from the given time.

* Changing 24-hour clock time to 12-hour clock time

If the time is between.

⇒ 0000 and 0059 hours, add 12 hours and write a.m.

⇒ 0100 and 1159 hours, there will be no change in figure. Just write a.m. after the given time.

⇒ 1200 and 1259 hours, there will be no change in figure. Write p.m. after the given time.

⇒ 1300 and 2359 hours, subtract 12 hours and write p.m.

Exercise 11.3

A Write the time in the 24-hour clock format.

1. 10:12 a.m. → 1012 hours
2. 12:00 noon → 1200 hours
3. 12:00 midnight → 0000 hours
4. 8:38 p.m. + 12:00 = 2038 hours

B. Write the time in the 12-hour clock format.

1. 1440 hours − 12:00 = 2:40 p.m.
2. 2200 hours − 12:00 = 10:00 p.m.
3. 1755 hours − 12:00 = 05:55 p.m.
4. 0024 hours + 12:00 = 12:24 a.m.

1 year = 12 months
1 day = 24 hours
1 year = 365 or 366 days
1 hour = 60 minutes
1 week = 7 days
1 minute = 60 seconds.

To convert days to hours, multiply the number of days by 24.

To convert hours to days, divide the number of hours by 24.

To convert hours to minutes, multiply the no. of hours by 60.

To convert minutes to hours, divide the no. of minutes by 60.

To convert minutes to seconds, multiply the no. of minutes by 60

To convert seconds to minutes, divide the no. of seconds by 60.

Exercise 11.4.

A. Convert to hours

1. 7 days

1 day = 24 hours
7 days = 24 × 7 = 168 hours

2. 5 days 10 hours
1 day = 24 hours
5 days = 24 × 5 = 120 hours

5 days 10 hours = (120 + 10) hrs. 130 hours

3. 19 days 23 hours

1 day = 24 hours

19 days = 19 × 24 = 456 hours

19 days 23 hours = 456 hours + 23 hours
= 479 hours.

B. Convert to days and hours.

1. 120 hours.

= 120 ÷ 24
= 5 days

$$\begin{array}{r} 5 \\ 24\overline{)120} \\ -120 \\ \hline 0 \end{array}$$

2. 196 hours

= 196 ÷ 24
= 8 days 4 hours

$$\begin{array}{r} 8 \\ 24\overline{)196} \\ -192 \\ \hline 4 \end{array}$$

3. 331 hours

= 331 ÷ 24
= 13 days 19 hours

$$\begin{array}{r} 13 \\ 24\overline{)331} \\ -24 \\ \hline 91 \\ -72 \\ \hline 19 \end{array}$$

4. 472 hours

= 472 ÷ 24
= 19 days 16 hours

$$\begin{array}{r} 19 \\ 24\overline{)472} \\ -24 \\ \hline 232 \\ -216 \\ \hline 16 \end{array}$$

C. Convert to minutes.

1. 4 hours

1 hour = 60 minutes

4 hours = 4 x 60 = 240 minutes.

2. 2 hours 50 minutes.

=(2 x 60 + 50) minutes.

= 120 + 50 minutes

= 170 minutes.

3. 1 hour 30 minutes

=(1 x 60 + 30) minutes.

= (60 + 30) minutes

= 90 minutes

D. Convert to hours and minutes.

1. 120 minutes

= 12ϕ ÷ 6ϕ = 12 ÷ 6

= 2 hours

2. 1200 minutes

= 120ϕ ÷ 6ϕ

= 120 ÷ 6

= 20 hours

3. 1247 minutes

$= 1247 \div 60$

$= 20$ hours 47 minutes

$$60\overline{)1247}\ (20,\quad -120\downarrow,\quad 47,\quad -0,\quad 47$$

4. 2478 minutes

$= 2478 \div 60$

$= 41$ hours 18 minutes

$$60\overline{)2478}\ (41,\quad -240\downarrow,\quad 78,\quad -60,\quad 18$$

E. Convert to seconds.

1. 4 minutes

1 min = 60 sec.

4 min = 4×60 = 240 sec

2. 5 min 5 seconds

$= 5 \times 60 + 5$

$= 300 + 5$

$= 305$ seconds.

3. 12 min 20 sec

$= 12 \times 60 + 20$

$= 720 + 20$

$= 740$ sec.

F. Convert to minutes and seconds.

1. 480 sec

$= 480 \div 60$

$= 8$ min

$$60\overline{)480}\ 8,\quad -480,\quad 0$$

2. 810 sec

$= 810 \div 60$

$= 13$ min 30 sec

$$60\overline{)810}\ 13,\quad -60\downarrow,\quad 210,\quad -180,\quad 30$$

3. 1240 sec

$= 1240 \div 60$

$= 20$ min 40 sec

$$60\overline{)1240}\ 20,\quad -120\downarrow,\quad 40,\quad -0,\quad 40$$

4. 3008 sec

$= 3008 \div 60$

$= 50$ min 8 sec

$$60\overline{)3008}\ 50,\quad -300\downarrow,\quad 8,\quad -0,\quad 8$$

Exercise 11.5

A. Add

1. 7 min 45 sec and 6 min 35 sec

min	sec
7	45
+ 6	35
13	80

$\downarrow$

60 sec + 20 sec

$\downarrow$

$= 1$ min + 20 sec

Now 13 min + 1 min 20 sec

$= 14$ min 20 sec Ans.

2. 12 min 50 sec and 20 min 45 sec

min	sec
12	50
+ 20	45
32	95

$\downarrow$

(60 + 35) sec $\rightarrow$ 1 min 35 sec

$= 32$ min + 1 min 35 sec

$= 33$ min 35 sec Ans.

3. 5 hours 25 min and 8 hrs 30 min

Hours	min
5	25
+ 8	30
13	55

Ans.

4. 6 hours 55 min and 4 hours 5 min

Hours	min
6	55
+ 4	05
10	60 $\rightarrow$ 1 hour

$\rightarrow$ 10 hours + 1 hour = 11 hours Ans.

B. Subtract

1. 25 min 15 sec from 30 min 20 sec

Soln:-

	min	sec
	30	20
−	25	15
	5	05

Ans 5 min 5 sec

2. 12 minutes 45 sec from 20 min 5 sec

Soln:- 45 sec > 5 sec

so, regroup 20 min to 19 min + 60 sec

∴ 60 sec + 5 sec = 65 sec

Subtract 45 sec from 65 sec

	Min	sec
	(19)	(65)
	20	5
−	12	45
	07	20

∴ Ans → 7 min 20 sec

3. 4 hours 35 min from 7 hours 20 min

35 min > 20 min

so, regroup 7 hours to 6 hours + 60 min.

hours	Mins.
(6)	(80)
7	20
− 4	35
2	45

Ans → 2 hours 45 min

C. Multiply

1. 7 hours 45 minutes by 2

Hours	min
7	45
x	2
14	90

90 → 60 min + 30 min
60 min → 1 hour

∴ 14 hours + 1 hour 30 min
= 15 hours 30 min

2. 2 hours 15 min by 9

Hours	min
2	15
x	9
18	135 → 60+60 + 15 min

60+60 → 2 hours
135 → 2 hours + 15 min

∴ 18 hours + 2 hours 15 min
= 20 hours 15 min

D. Divide

1. 36 hours 30 minutes by 6

Hours	Minutes
6	05
6) 36	30
-36	0
0	30
	-30
	0

Ans:- 6 hours 5 min

2. 36 minutes 24 seconds by 4

minutes	seconds
9	06
4) 36	24
-36	0
0	24
	-24
	0

3. 49 min 56 sec by 7

min	sec
7	08
7) 49	56
- 49	0
0	56
	-56
	0

Exercise 11.6

Solve these story sums.

1. Amit watched two cartoon shows on television. The first show was 1 hour 35 minutes long. The second show 45 minutes long. For how long did he watch television?

Soln:→ Time for 1st show = 1 hour 35 min
Time for 2nd show = 45 min.

hour	min
1	35
0	45
1	80 → (60 + 20) min
	→ 1 hr 20 min

∴ Time for 1st and 2nd show = 1 + 1 hr 20 min
= 2 hr 20 min

2. Shailesh took 1 hour 25 minutes to complete a race while Abhinav took 1 hour 45 minutes. Who ran faster? By how much?

Soln:→ Time taken by Shailesh = 1 hour 25 minutes
Time taken by Abhinav = 1 hour 45 minutes

It is clear that → Abhinav took 1 hr 45 min while Sailesh took 1 hr 25 min.
So, Sailesh ran faster.

hours	minutes
1	45
1	25
0	20

So, Sailash ran faster by 20 min than Abhinav.

Q3. To reach Goa, Renu took a flight of 2 hrs 15 min and another of 1 hr 25 min. Gagan took a single flight of 2 hrs 20 min to reach Goa. Who took more time to reach? How much longer?

Soln:→ Time of 1st flight = 2 hrs 15 min
Time of 2nd flight = 1 hr 25 min
Time of both flights = 3 hr 40 min

Now Gagan Took a single flight of 2 hrs 20 min

So, Renu took more time to reach Goa

Difference =	Hours	min
	3	40
	− 2	20
	1	20

So, Renu took 1 hr 20 min more than Gagan.

Q4. Punjab Mail takes 3 hours 15 minutes to reach Agra from New Delhi while Gatimaan Express takes 1 hour 40 minutes. How much time will Riya save if she travels by Gatimaan Express.

Soln:→ Time taken by Punjab Mail = 3 hours 15 min
Time taken by Gatimaan Express = 1 hour 40 min

	hours	min
Difference =	2	75
	− 1	40
	1	35

So, Riya save 1 hour 35 min if she travels by Gatimaan Express.

5. Vande Bharat Express takes 3 hours 19 minutes to reach Ludhiana Junction from New Delhi. It further takes 3 hours 17 minutes to reach Jammu Tawi from Ludhiana Junction. How much time does it take to reach Jammu Tawi from New Delhi?

Soln:→ Time taken by Vande Bharat Express = 3 hrs 19 min
It further takes time i.e. = +3 hrs 17 min
So, Time taken to reach Jammu Tawi from New Delhi = 6 hrs 36 min

6. Mumbai Rajdhani Express takes 10 hours 59 min to reach Vadodara Junction from New Delhi and takes 4 hours 41 min to reach Mumbai Central from Vadodara Junction. How much time does it take to reach Mumbai Central from New Delhi?

Soln:→ Time taken to reach Vadodara Junction from New Delhi
= 10 hours 59 min

Time taken to reach Mumbai Central from Vadodara Junction = 4 hours 41 min

Time taken to reach Mumbai Central from New Delhi:-

Hours	Min
10	59
+ 4	41
14	100 → (60 + 40) min
	= 1 hr 40 min

⇒ 14 + 1 hr 40 min
= 15 hr 40 min

Q7. Train X takes 32 hours 20 minutes to reach a destination, while train Y takes 28 hours 35 min. How much time a person saves if he travels by train Y?

Soln:→ Time taken by train X = 32 hours 20 min
Time taken by train Y = 28 hours 35 min

Difference = 31 hours 80 min − 28 hours 35 min

Hours	min
31	80
− 28	35
3	45

Hence, a person saves 3 hours 45 min if he travels by train Y.