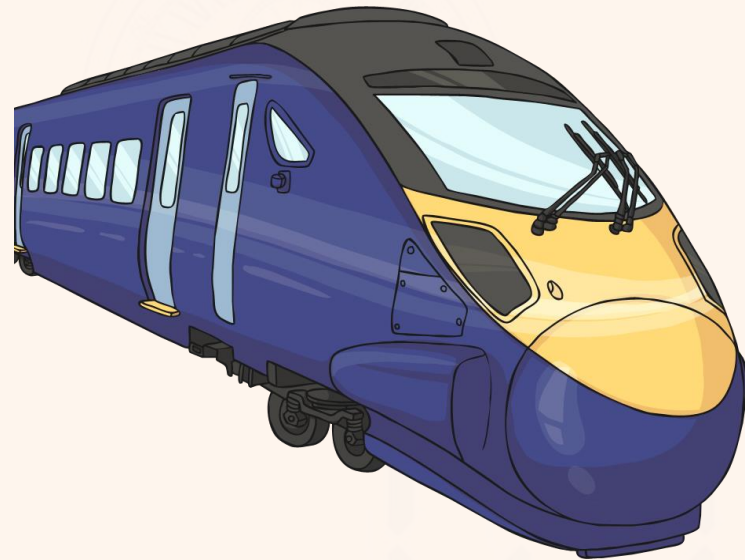
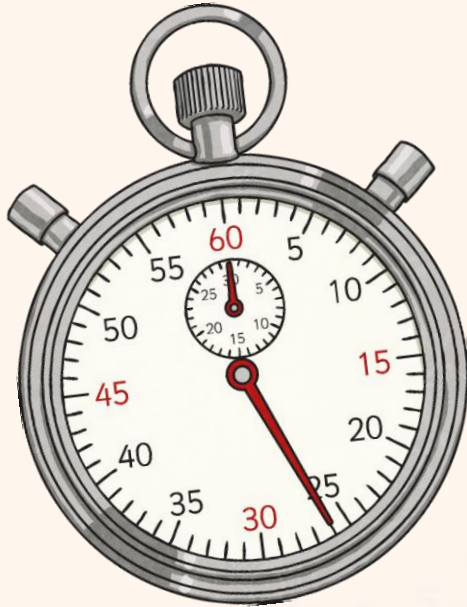


Converting units of time and reading timetables



Aim

- I can convert units of time.
- I can use bar models to help me convert units of time.
- I can complete, read and interpret information presented in a timetable.

Success Criteria

- I can read and interpret a timetable written using 24-hour time.
- I can calculate how much time has passed in hours and minutes.
- I can answer questions about the information shown in a train timetable and explain my reasoning.

Converting time

Week 12 lesson 3

There are 60 seconds in 1 minute.

There are 60 minutes in 1 hour.

There are 7 days in a week.

There are 52 weeks in a year.

There are 365 days in a year.

There are 366 days in a leap year.



Converting seconds to minutes and minutes to hours

It is useful to know your 6x table to be able to do this!

$1 \times 6 = 6$	1 hour = 60 minutes
$2 \times 6 = 12$	2 hours = 120 minutes
$3 \times 6 = 18$	3 hours = 180 minutes
$4 \times 6 = 24$	4 hours = 240 minutes
$5 \times 6 = 30$	5 hours = 300 minutes

Can you see the pattern?

Minutes and Seconds

Can you complete this table to convert between seconds and minutes and seconds?

Seconds	Minutes and Seconds
140	
	1:45
	3:10
250	
	5:35

Explain how you can work out these answers.



Minutes and Seconds

Seconds	Minutes and Seconds
140	2:20
105	1:45
190	3:10
250	4:10
335	5:35

You can use a bar model to work these out. For example:

140 seconds		
60	60	20

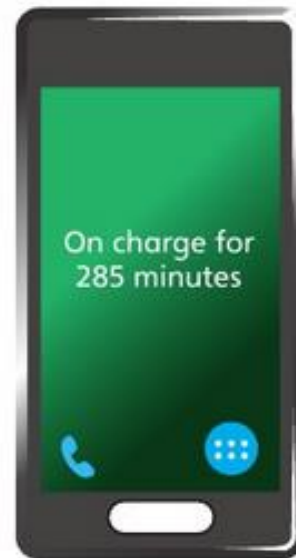
60 seconds = 1 minute

Therefore 140 seconds is the same as 2 minutes and 20 seconds

I am taking my phone back to the shop. The charger has broken already and I have only had it 39 days!

Have a go...

Buy one like mine!
My battery has 5 bars and each bar takes an hour to charge.



Toshi

Amal

- How many weeks has Toshi had his phone for?
- How many bars of Amal's battery should be charged fully?
How long until the next bar is charged?

Solution 1a

a)

There are 7 days in 1 week. 39 is not a multiple of 7, so I predict that there will be a remainder.

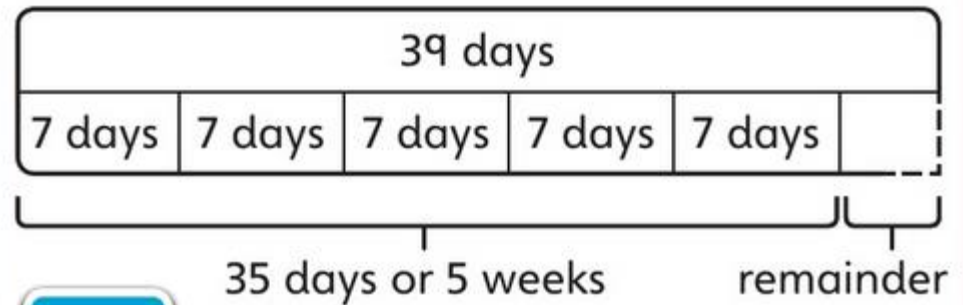


$$39 \div 7 = 5 \text{ remainder } 4$$

So 39 days = 5 weeks
and 4 days

Toshi has had his phone
for 5 weeks and 4 days.

Here is a bar model to help us
work this out:

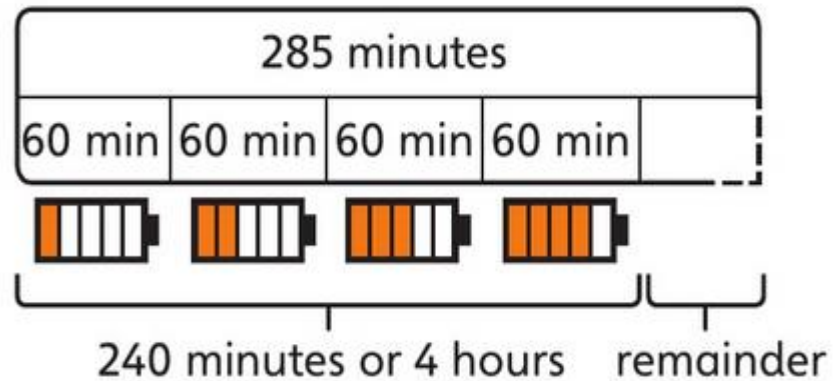


Solution 1b

b) 60 minutes = 1 hour

285 minutes is between
240 and 300 minutes.

285 minutes = 4 hours
and a remainder
of minutes



Amal's phone should have 4 bars fully charged.

$$285 - 240 = 45$$

Amal's phone has been charging for 4 hours and 45 minutes.

$$60 - 45 = 15$$

There are 15 minutes left until the next bar is charged.

Timetables

Week 12 lesson 4

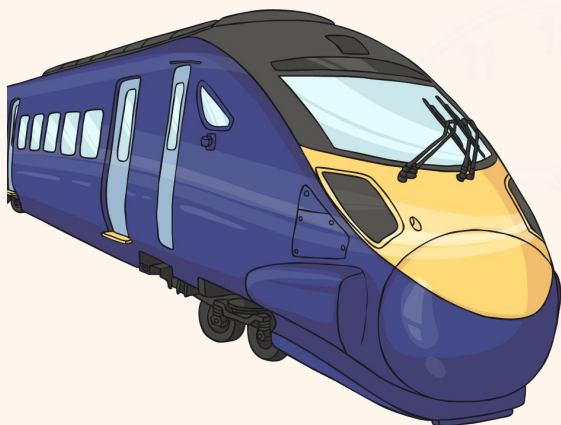
Here is a train timetable.

Canberra	Departure	12:29	12:49	13:29	13:49	14:29	14:49	15:29	15:49	16:29
Sydney Town Hall Station	Arrival	14:30	14:59	15:31	15:59	16:32	16:59	17:29	18:07	18:36

This train starts at Canberra and will take you to Sydney town hall, with no stops in between.

To read the timetable, select the departure time you would like to leave Canberra.

Follow the timetable downwards to see what time you would land in Sydney.



Can you work out how long each journey time is in minutes and in hours and minutes?

Why would the journey time be different for each journey, do you think?

Take the Train

Canberra	Departure	12:29	12:49	13:29	13:49	14:29	14:49	15:29	15:49	16:29
Sydney Town Hall Station	Arrival	14:30	14:59	15:31	15:59	16:32	16:59	17:29	18:07	18:36
Duration		2:01	2:10	2:02	2:10	2:03	2:10	2:00	2:18	2:07
Duration in Minutes		121	130	122	130	123	130	120	138	127

Train journeys sometimes take different durations as they may have to stop at signals to allow other trains on the network to proceed.

At busier times, a train may take longer and proceed more slowly so that more trains can fit into the network's schedule.

Timetables

I go to Breakfast Club, so the school bus picks me up from Clemence Way at twenty-five minutes to 8.

Anderton Primary School Buses

Stop	Bus A	Bus B	Bus C
Nicolson Street	07:15	07:30	07:45
Clemence Way	07:35	07:50	08:05
Hart Lane Shops	07:42	07:57	08:12
Mason Avenue	07:46	08:01	08:16
Marigold Crescent	07:56	08:11	08:26
Anderton Primary School	08:05	08:20	

Emma

Max

- What time does Emma arrive at school?
- All the buses take the same time to get to school. What time does Bus C arrive?

Solution a)

Share

- a) Each column of the timetable shows a different bus. Each row shows a different place.

Stop	Bus A
Nicolson Street	07:15
Clemence Way	07:35
Hart Lane Shops	07:42
Mason Avenue	07:46
Marigold Crescent	07:56
Anderton Primary School	08:05

→ Twenty-five minutes to 8
= 7:35 am
= 07:35

Timetables are usually written in 24-hour digital time, so you will have to convert first.



Emma catches Bus A. Emma arrives at school at 08:05 (five minutes past 8).

Solution b)

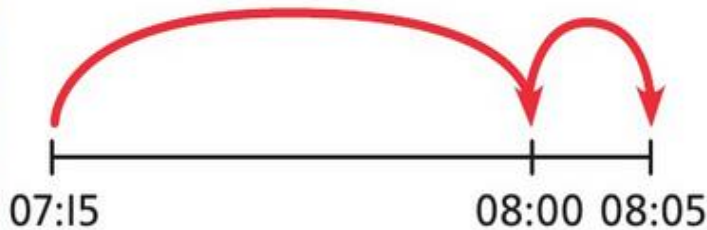
b)

I am going to use the information from the other buses to work out the hidden time.

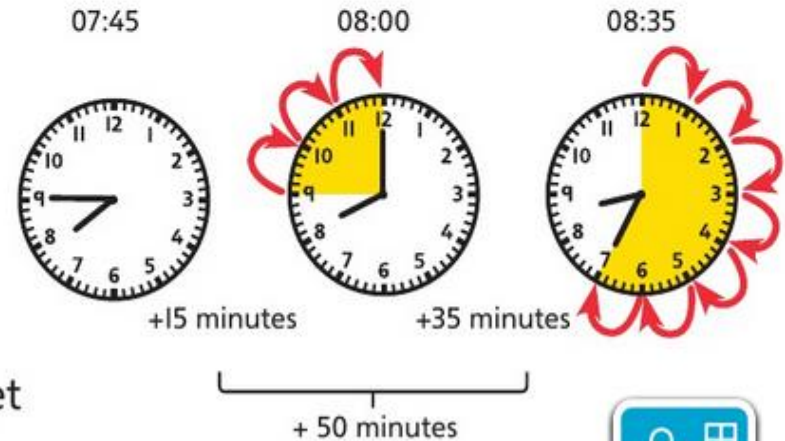


Stop	Bus A	Bus B
Nicolson Street	07:15	07:30
Anderton Primary School	08:05	08:20

Bus A



Bus C



Each bus takes 50 minutes to get from Nicholson Street to school.

Bus C arrives at school at 08:35.



Now have a go at the challenges we have set for you this week.

Remember, when you see this symbol:



You will be going even deeper with your learning.

The 'Reflect' section will help you with your reasoning, so do have a go at this!

