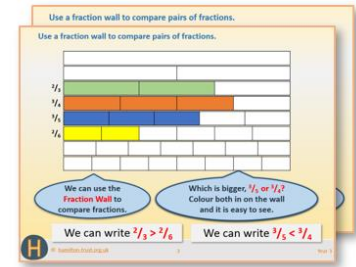


# Week 11, Day 4

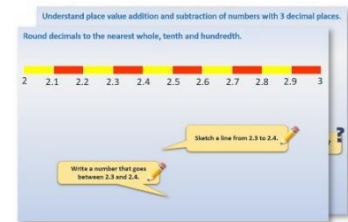
## Calculate time intervals using the 24-hour clock.

Each day covers one maths topic. It should take you about 1 hour or just a little more.

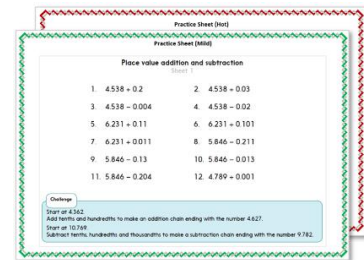
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



OR start by carefully reading through the **Learning Reminders**.



2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

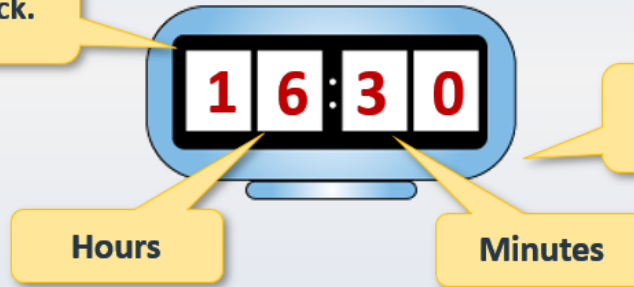


4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**...

## Learning Reminders

Calculate time intervals using the 24-hour clock.

This is a 24-hour digital clock.



It is equivalent to 4:30pm.

Remember to change a pm time to a 24-hour clock time add 12 to the hours.  
7:45pm is the same as 19:45.

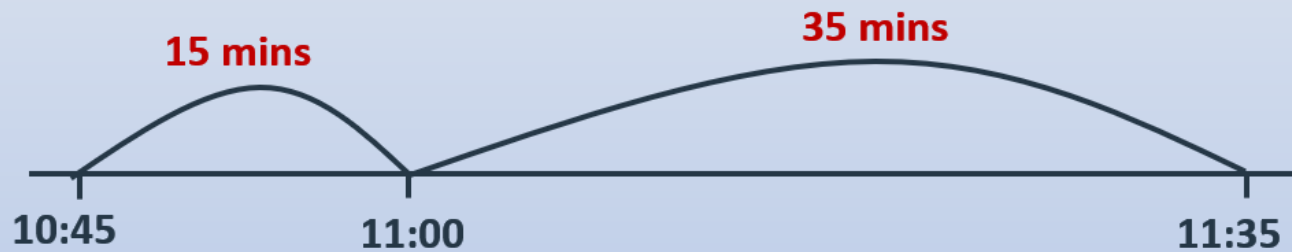
## Learning Reminders

Calculate time intervals using the 24-hour clock.

We can count up on a number line to calculate time intervals.

But remember that we are counting up to 60 to reach the next hour, not 100...

A school science lesson starts at 10:45 and ends at 11:35. How long does it last?



$$15 \text{ mins} + 35 \text{ mins} = 50 \text{ mins}$$

## Learning Reminders

Calculate time intervals using the 24-hour clock.

A singing lesson **starts at 13:50** and **ends at 14:40**.  
How long does it last?



$$10 \text{ mins} + 40 \text{ mins} = 50 \text{ mins}$$

## Practice Sheet Mild

### Busy weekend



Simon and Lizzie are decorating two rooms.  
This is how long each task takes:

#### Living room

Organising workspace:	20 minutes
Cleaning and preparing the walls:	55 minutes
Painting the first coat:	1 hour 32 minutes
Painting the second coat:	1 hour 47 minutes

#### Dining room

Organising workspace:	18 minutes
Cleaning and preparing the walls:	49 minutes
Painting the first coat:	1 hour 21 minutes
Painting the second coat:	1 hour 38 minutes

Simon and Lizzie start the living room at 9.30 am on Saturday.

1. First they organise their workspace and prepare the walls.  
What time do they take a coffee break?
2. At 11:15 am they start painting the first coat.  
What time will they finish it and have lunch?

Simon and Lizzie start the dining room at 10:22 am on Sunday.

3. First they organise their workspace and prepare the walls.  
What time do they take a coffee break?
4. After a half-hour break they start painting the first coat.  
What time will they finish it and have lunch?
5. Lunch takes 1 hour 7 minutes.  
What time do they start work on the second coat?
6. What time will they finish painting the dining room?

## Practice Sheet Hot Busy weekend



Simon and Lizzie are decorating two rooms.  
This is how long each task takes:

### Living room

Organising workspace:	20 minutes
Cleaning and preparing the walls:	55 minutes
Painting the first coat:	1 hour 32 minutes
Painting the second coat:	1 hour 47 minutes

### Dining room

Organising workspace:	18 minutes
Cleaning and preparing the walls:	49 minutes
Painting the first coat:	1 hour 21 minutes
Painting the second coat:	1 hour 38 minutes

Simon and Lizzie start the living room at 9.30 am on Saturday.

1. First they organise their workspace and prepare the walls.  
What time do they take a coffee break?
2. At 11:15 am they start painting the first coat.  
What time will they finish it and have lunch?
3. They start work on the second coat at 1:58 pm.  
What time will they finish painting the living room?

Simon and Lizzie start the dining room at 10:22 am on Sunday.

4. First they organise their workspace and prepare the walls.  
What time do they take a coffee break?
5. After a half-hour break they start painting the first coat.  
What time will they finish it and have lunch?
6. Lunch takes 1 hour 7 minutes.  
What time do they start work on the second coat?
7. What time will they finish painting the dining room?
8. Simon and Lizzie have a cup of tea for 10 minutes when they finish.  
Then they want to go out at 4.30 pm.  
How long will they have to get ready?

### Challenge

Simon and Lizzie want to get the two jobs done in one weekend. They need to finish by 4:30 pm on Sunday. Write a different timetable for when they will do each task and when they will take coffee, lunch or tea breaks.

# Practice Sheet Answers

## Busy weekend (mild)

1. Simon and Lizzie take a coffee break at 10.45am.
2. They will finish the first coat and have lunch at 12.47pm.
3. Simon and Lizzie take a coffee break at 11.29am.
4. They will finish the first coat and have lunch at 1.20pm.
5. They start work on the second coat at 2.27pm.
6. They will finish painting the living room at 4.05pm.

## Busy weekend (hot)

1. Simon and Lizzie take a coffee break at 10.45am.
2. They will finish the first coat and have lunch at 12.47pm.
3. They will finish painting the living room at 3.45pm.
4. Simon and Lizzie take a coffee break at 11.29am.
5. They will finish the first coat and have lunch at 1.20pm.
6. They start work on the second coat at 2.27pm.
7. They will finish painting the living room at 4.05pm.
8. Simon and Lizzie will have 15 minutes to get ready.

## Challenge

Simon and Lizzie want to get the two jobs done in one weekend. They need to finish by 4:30 pm on Sunday. Write a different timetable for when they will do each task and when they will take coffee, lunch or tea breaks.

e.g. Saturday	10:00am	Organise workspace in the living room
	10:20am	Prepare the walls in the living room
	11:15am	Coffee break
	11:30am	Start first coat of paint
	1:02pm	Finish first coat of paint and have lunch
	2:00pm	Start second coat of paint
Sunday	3:47pm	Living room is finished and time for a cuppa
	9:00am	Organise workspace in the dining room
	9:18am	Prepare the walls in the dining room
	10:07am	Coffee break and get lunch cooking
	11:15am	Start first coat of paint
	12.36pm	Finish first coat and have some lunch
	1:15pm	Start second coat of paint
2.53pm	Living room is finished and time for a cuppa	

## A Bit Stuck?

### Matching 12 and 24 hour clock times



Cut out the 12-hour and 24-hour times and stick the matching times together.

12:25	3:10 pm	10:45	19:30	9:35 am	15:10
10:45 am	7:30 pm	12:25 pm	5:50 am	05:50	09:35



## A Bit Stuck?

### Answers

#### Matching 12 and 24 hour times

12:25 = 12:25 pm

19:30 = 7:30 pm

05:50 = 5:50 am

07:20 = 7:20 am

16:55 = 4:55 pm

00:15 = 12:15 am

## Investigation

### Hogwarts timetable



Route number	71	97	53	35	61	47	67
<i>Diagon Alley</i>	07:45	08:45	09:00	14:15	15:00	15:50	19:35
<i>Kings Cross</i>	08:02	09:02	09:17	14:45	15:17	16:07	19:52
<i>Little Whinging</i>	09:15	10:15	-----	16:37	-----	17:20	-----
<i>Ottery St Catchpole</i>	12:45	13:50	-----	20:21	-----	20:50	-----
<i>Gretna Green</i>	18:50	-----	15:33	-----	-----	-----	05:02
<i>Hogwarts</i>	20:58	-----	18:25	-----	23:55	-----	07:36
<i>Hogsmeade</i>	21:07	-----	18:34	-----	00:04	-----	07:45

#### Part A

Write out Route 71 and Route 67 in 12-hour (am/pm) clock times.

#### Part B

Use the information in the timetable to answer these questions:

- How long does Route 47 take from Kings Cross to Little Whinging?
- How long does Route 71 take from Gretna Green to Hogwarts?
- How long does Route 61 take from Hogwarts to Hogsmeade?
- How long does Route 35 take from Little Whinging to Ottery St Catchpole?

#### Part C

- Which is the fastest train from Gretna Green to Hogsmeade?
- Which is the fastest train from Kings Cross to Ottery St Catchpole?

#### Challenge

Four trains travel all the way from Diagon Alley to Hogsmeade. What are the quickest and the slowest times for this journey?

# Investigation

## Answers

### Hogwarts timetable

#### Part A

Write out Route 71 and Route 67 in 12-hour (am/pm) clock times.

Route 71		Route 67	
Diagon Alley	7:45am	Diagon Alley	7:35pm
Kings Cross	8:02am	Kings Cross	7:52pm
Little Whinging	9:15am	Little Whinging	-----
Otterly St Catchpole	12:45pm	Otterly St Catchpole	-----
Gretna Green	6:50pm	Gretna Green	5:02am
Hogwarts	8:58pm	Hogwarts	7:36am
Hogsmeade	9:07pm	Hogsmeade	7:45am

#### Part B

Use the information in the timetable to answer these questions:

1. How long does Route 47 take from Kings Cross to Little Whinging? **1 hour 13 mins**
2. How long does Route 71 take from Gretna Green to Hogwarts? **2 hours 8 mins**
3. How long does Route 61 take from Hogwarts to Hogsmeade? **9 minutes**
4. How long does Route 35 take from Little Whinging to Otterly St Catchpole? **3 hours 44 mins**

#### Part C

1. Which is the fastest train from Gretna Green to Hogsmeade? **Route 71**
2. Which is the fastest train from Kings Cross to Otterly St Catchpole? **Route 71 and Route 47 are both same time at 4 hours 43 minutes**

### Challenge

Four trains travel all the way from Diagon Alley to Hogsmeade. What are the quickest and the slowest times for this journey?

**Quickest is 9 hours 4 minutes (route 61)**

**Slowest is 13 hours 22 minutes (route 71)**

**Route 71 7:45 to 21:07 takes 13 hours 22 minutes**

**Route 53 9:00 to 18:34 takes 9 hours 34 minutes**

**Route 61 15:00 to 00:04 takes 9 hours 4 minutes**

**Route 67 19:35 to 07:45 takes 12 hours 10 mins**