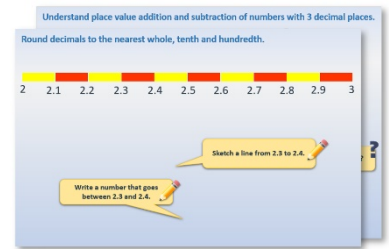


# Week 7, Day 2

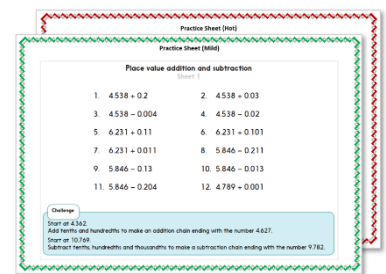
## 24-hour timetables

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

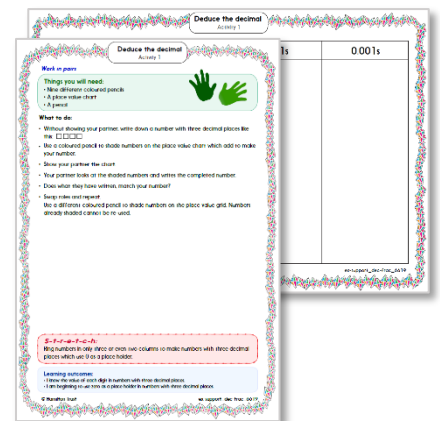
1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



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

Read timetables using the 24-hour clock; Calculate time intervals (at least 3 hours).

- Deidre is trying to find out if it is possible to travel from Thurso (the most northern rail station in the UK) to Penzance (the most southerly) in under 24 hours. She is going from near John O'Groats in Scotland to the end of Cornwall!
- Deidre has planned a journey where she will catch five trains and has found the following train times...

Depart	Arrive
Thurso 16:29	Inverness 20:10
Inverness 20:38	Crewe 05:32
Crewe 05:47	Birmingham 06:58
Birmingham 07:12	Bristol 08:41
Bristol 09:13	Penzance 13:18

Does the whole train journey take less than 24 hours?  
How can you tell?

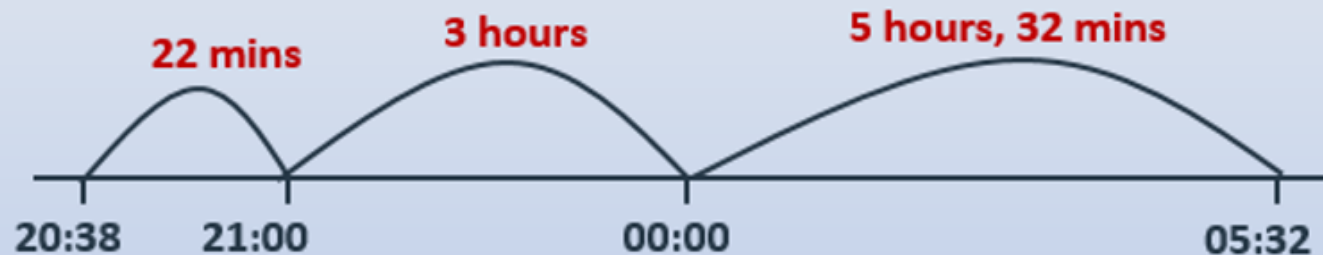
Which 'legs' of the journey take place in the evening?  
Overnight? In the morning? Afternoon?

## Learning Reminders

Read timetables using the 24-hour clock; Calculate time intervals (at least 3 hours).

Depart	Arrive
Thurso 16:29	Inverness 20:10
Inverness 20:38	Crewe 05:32
Crewe 05:47	Birmingham 06:58
Birmingham 07:12	Bristol 08:41
Bristol 09:13	Penzance 13:18

What do you notice about the second journey (Inverness to Crewe)?  
Let's use a timeline to calculate the journey time...



$$5 \text{ hours} + 3 \text{ hours} + 32 \text{ mins} + 22 \text{ mins} = 8 \text{ hours } 54 \text{ mins}$$

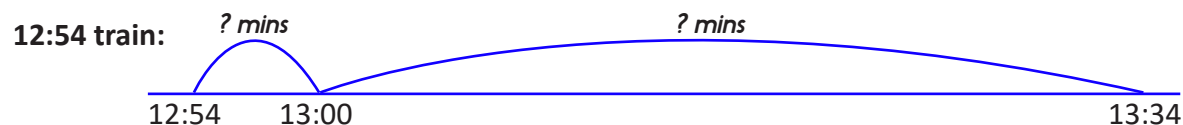
## Practice Sheet Mild

### Reading timetables

Penzance	12:54	14:00	16:00	17:38	19:13
Truro	13:34	14:41	16:42	18:23	19:52
St Austell	13:50	14:59	17:00	18:40	20:09
Bodmin Parkway	14:10	15:18	17:22	18:59	20:29
Liskeard	14:23	15:32	17:36	19:12	20:43
Plymouth	14:51	15:57	17:59	19:37	21:18
Newton Abbot	15:30	16:38	18:42	20:18	22:04
Exeter St Davids	16:00	17:00	19:03	20:40	22:38

After her epic end-to-end train journey, Deidre's train from Thurso finally gets into Penzance at 13:18.

- Which is the first train she can catch home from Penzance to Exeter? What time would she get to the station in Exeter? Where is the first stop on this train? How long does it take to get there?
- She decides to stretch her legs, have some lunch and then do some shopping in Penzance before setting off for home. What train might she catch? What time would she get to Exeter? How long would this take?
- She's just had a text to say that some of her friends can meet her at Plymouth station at 6pm and take her for a celebratory meal before taking her home. So she decides to stay a while in Penzance. What's the last train she can catch to meet her friends? How long will this journey take?
- Some of the trains are slower than others because some stop at smaller station in between Penzance and Truro. Which is the slowest train between Penzance and Truro, and which is the fastest?



Total time is:

## Practice Sheet Hot Reading timetables

Penzance	12:54	14:00	16:00	17:38	19:13
Truro	13:34	14:41	16:42	18:23	19:52
St Austell	13:50	14:59	17:00	18:40	20:09
Bodmin Parkway	14:10	15:18	17:22	18:59	20:29
Liskeard	14:23	15:32	17:36	19:12	20:43
Plymouth	14:51	15:57	17:59	19:37	21:18
Newton Abbot	15:30	16:38	18:42	20:18	22:04
Exeter St Davids	16:00	17:00	19:03	20:40	22:38

After her epic end-to-end train journey, Deidre's train from Thurso finally gets into Penzance at 13:18.

1. Which is the first train she can catch home from Penzance to Exeter?  
What time would she get to the station in Exeter? How long would this take?
2. She decides to stretch her legs, have some lunch and then do some shopping in Penzance before setting off for home.  
What train might she catch? What time would she get to Exeter? How long would this take?
3. She's just had a text to say that some of her friends can meet her at Plymouth station at 6pm and take her for a celebratory meal before taking her home. They tell her to catch the 16:00 train.  
What time will she get into Plymouth? How long will this journey take?
4. Some of the trains are slower than others (because some stop at smaller station in between).  
Which is the slowest train, between Penzance and Exeter, and which is the fastest?

## Practice Sheets Answers

### Reading timetables (mild)

1. The next train is at 14:00, she will get to Exeter at 17:00. The first stop is Truro, this will take 41 minutes.
2. If she gets the 16:00, she will get to Exeter at 19:03, 3 hours and 3 minutes.  
If she gets the 17:38, she will get to Exeter at 20:40, 3 hours and 2 minutes.  
If she gets the 19:13, she will get to Exeter at 22:38, 3 hours and 25 minutes.
3. The last train that she can get to meet her friends at 6pm is the 16:00. She will get into Plymouth at 17:59, the journey will take 1 hour and 59 minutes.
4. The slowest train is the 17:38, the fastest train is the 19:13.

### Reading timetables (hot)

1. The next train is at 14:00, she will get to Exeter at 17:00. This will take 3 hours.
2. If she gets the 16:00, she will get to Exeter at 19:03, 3 hours and 3 minutes.  
If she gets the 17:38, she will get to Exeter at 20:40, 3 hours and 2 minutes.  
If she gets the 19:13, she will get to Exeter at 22:38, 3 hours and 25 minutes.
3. She will get into Plymouth at 17:59, the journey will take 1 hour and 59 minutes.
4. The slowest train is the 19:13, the fastest train is the 14:00.

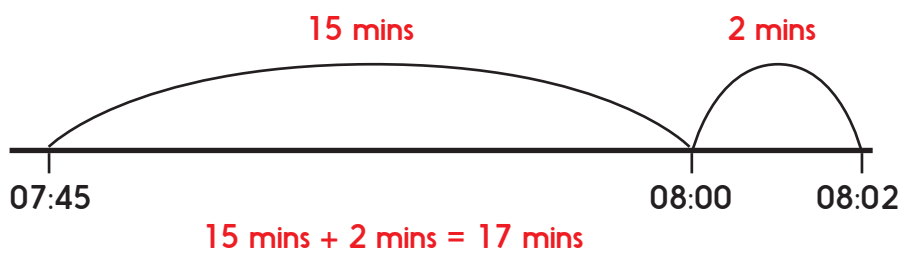
## A Bit Stuck? Hogwarts train timetable

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

For each route, find how long the train takes between Diagon Alley and Kings Cross. What do you notice?

Investigate journey times between other pairs of stations. In each case, find the quickest and the slowest journey times.

Draw timeline jottings to help you.  
e.g.



## Investigation

### Steam train day out

#### You will need:

- North Yorkshire Moors steam railway summer timetable (see resource)
- Some tourists want to stop at each station and explore every place that the steam train visits.
- Find a way to leave Pickering, get off at every station, get back on a different train each time, then return directly from Whitby to Pickering at the end of the day.
- Work out an itinerary, including how long they can spend at each place.

#### Some questions *For each question, be sure to explain your ideas fully...*

1. Do you think the tourists will get the most out of each location, given the time they can spend in each?
2. If you were planning a day out, how many places would you stop at? Do you get the same amount of time at each stop?
3. Can you find an itinerary that makes the best use of the time if you stop off at three different places? Explain your choices.
4. Is it possible to plan a day with lunch at Whitby and still stop and get off at every station?



## Investigation resource

### North Yorkshire Moors steam railway summer timetable

Pickering	Depart	09:00	11:00	12:00	13:00	15:00	-	16:00	-
Levisham	Depart	09:19	11:20	12:20	13:20	15:20	-	16:20	-
Newtondale	Request	-	11:29	12:29	13:29	15:29	-	16:29	-
Goathland	Depart	09:47	11:50	12:50	13:50	16:10	-	16:50	-
Grosmont	Arrive	10:00	12:03	13:03	14:03	16:23	-	17:03	-
Grosmont	Depart	10:13	-	13:13	-	-	16:38	-	-
Whitby	Arrive	10:35	-	13:35	-	-	17:00	-	-
Whitby	Depart	-	11:00	-	-	14:00	-	-	17:30
Grosmont	Arrive	-	11:22	-	-	14:22	-	-	17:50
Grosmont	Depart	10:30	11:30	-	13:30	14:30	-	16:30	18:00
Goathland	Depart	10:50	11:50	-	13:50	14:50	-	16:50	18:15
Newtondale	Request	11:03	12:03	-	14:03	15:03	-	17:03	-
Levisham	Depart	11:20	12:20	-	14:20	15:20	-	17:20	18:40
Pickering	Arrive	11:40	12:40	-	14:40	15:40	-	17:40	19:00