Week 10, Day 5

**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. 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. Have I mastered the topic? A few questions to **Check your understanding**.
   Fold the page to hide the answers!
Calculate time intervals using the 24-hour clock.

A film starts at 6:45pm and ends at 8:10pm. How long is the film?

We can do a jotting on a line to solve this. Start with the earliest time and use hours as stopping points to count up.

15 mins

1 hour

10 mins

6:45pm 7pm 8pm 8:10pm

1 hour + 15 mins + 10 mins = 1 hour 25 mins
Learning Reminders

Calculate time intervals using the 24-hour clock.

Starting before 7pm and finishing after 8pm we can find other pairs of times with a difference of 1 hour 25 minutes.

See how there is an hour between 7pm and 8pm and that the 25 minutes is split on either side of these two times.

6:50pm  7pm  8pm  8:20pm

5 mins  1 hour  20 mins

1 hour + 5 mins + 20 mins = 1 hour 25 mins
Practice Sheet Mild
Calculating time intervals

Here is a TV guide. It tells you what time television programmes start and finish. Look at the guide then answer the questions.

1. How long is the programme Soap Street?
2. How long is the programme App review?
3. Which programme lasts half an hour?
4. Which programme lasts 1 hour and 25 minutes?
5. How long is the longest programme?
6. How long is the shortest programme?

Challenge
Make up three more questions about the length of programmes in this guide.
Ask your partner to solve them.
Practice Sheet Hot
Calculating time intervals

Here is a TV guide. It tells you what time television programmes start and finish. Look at the guide then answer the questions.

1. How long is the programme Soap Street?
2. How long is the programme App review?
3. Which programme lasts half an hour?
4. Which programme lasts 1 hour and 25 minutes?
5. How long is the longest programme?
6. How long is the shortest programme?
7. How many programmes last longer than an hour?
8. How many programmes last less than half an hour?
9. A young child is watching Channel 2 at 4pm. What programme is on then?
10. Later, her brother watches Totally Trucks. He goes to bed at 8pm. How much of the programme will he miss?

Challenge
Make up three more questions about the length of programmes in this guide. Ask your partner to solve them.
Practice Sheets Answers

Calculating time intervals (mild)

1. Soap Street is 45 minutes long.
2. App review is 50 minutes long.
3. Coastal Walks lasts half an hour.
4. Monty goes to the Moon.
5. 1 hour and 50 minutes long (Alaskan Adventure).
6. 10 minutes long (Story Sack).

Calculating time intervals (hot)

1. Soap Street is 45 minutes long.
2. App review is 50 minutes long.
3. Coastal Walks lasts half an hour.
4. Monty goes to the Moon.
5. 1 hour and 50 minutes long (Alaskan Adventure).
6. 10 minutes long (Story Sack).
7. 3
8. 2
9. Terry the Teddy.
10. 20 minutes.
A Bit Stuck?
Converting times

Can you convert between analogue, 12-hour digital and 24-hour digital clocks?
Write in the missing times in each format.

<table>
<thead>
<tr>
<th>Analogue clock</th>
<th>Digital 12-hour format</th>
<th>Digital 24-hour format</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Analogue 1" /></td>
<td>10:15 am</td>
<td></td>
</tr>
<tr>
<td><img src="image2" alt="Analogue 2" /></td>
<td>8:45 am</td>
<td>08:45</td>
</tr>
<tr>
<td><img src="image3" alt="Analogue 3" /></td>
<td>2:35 pm</td>
<td></td>
</tr>
<tr>
<td><img src="image4" alt="Analogue 4" /></td>
<td></td>
<td>13:20</td>
</tr>
<tr>
<td><img src="image5" alt="Analogue 5" /></td>
<td>10:40 pm</td>
<td></td>
</tr>
</tbody>
</table>

Challenge

Can you arrange the 8 times in order throughout the day?
## A Bit Stuck? Answers

### Converting times

<table>
<thead>
<tr>
<th>Analogue clock</th>
<th>Digital 12-hour format</th>
<th>Digital 24-hour format</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Clock" /></td>
<td><strong>10:15 am</strong></td>
<td><strong>10:15</strong></td>
</tr>
<tr>
<td><img src="image" alt="Clock" /></td>
<td><strong>8:45 am</strong></td>
<td><strong>08:45</strong></td>
</tr>
<tr>
<td><img src="image" alt="Clock" /></td>
<td><strong>9:05 am</strong></td>
<td><strong>09:05</strong></td>
</tr>
<tr>
<td><img src="image" alt="Clock" /></td>
<td><strong>2:35 pm</strong></td>
<td><strong>14:35</strong></td>
</tr>
<tr>
<td><img src="image" alt="Clock" /></td>
<td><strong>1:20 pm</strong></td>
<td><strong>13:20</strong></td>
</tr>
<tr>
<td><img src="image" alt="Clock" /></td>
<td><strong>10:40 pm</strong></td>
<td><strong>22:40</strong></td>
</tr>
</tbody>
</table>

### Challenge

The order of times is: 8:45am, 9:05am, 10:15am, 1:20pm, 2:35pm, 10:40pm.
Check your understanding

Questions

Each of these train times is given using a 24-hour clock. Write the times in analogue format in words.

- 13:40 to London
- 14:45 to Bristol
- 15:13 to Newcastle
- 16:05 to Birmingham
- 17:35 to Chester

Calculate the time interval between each pair of times:

13:40  14:45
14:45  15:13
15:13  16:05
16:05  17:35

True or false

- Half an hour after quarter to midnight is 01:15
- 16:25 is half an hour before five to five
- 00:30 is half past midday.
- Twenty past three in the afternoon is 15 minutes before 15:35
Check your understanding

Answers

- 13:40 to London  Twenty to two.
- 14:45 to Bristol  Quarter to three.
- 15:13 to Newcastle  Thirteen past three.
- 16:05 to Birmingham  Five past four.
- 17:35 to Chester  Twenty five to six.

All are PM times. Watch for children subtracting 10 rather than 12 from the hours when converting 24-hour clock times.

Calculate the time interval between each pair.

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:40</td>
<td>14:45</td>
<td>1 hour 5 minutes</td>
</tr>
<tr>
<td>14:45</td>
<td>15:13</td>
<td>28 minutes</td>
</tr>
<tr>
<td>15:13</td>
<td>16:05</td>
<td>52 minutes</td>
</tr>
<tr>
<td>16:05</td>
<td>17:35</td>
<td>1 hour 30 minutes</td>
</tr>
</tbody>
</table>

True or false?

- Half an hour after quarter to midnight is 01:15 False, it is 00:15.
- 16:25 is half an hour before five to five True.
- 00:30 is half past midday False, it is half past midnight, half past midday is 12:30.
- Twenty past three in the afternoon is 15 minutes before 15:35 True.