

Reasoning and Problem Solving

Step 7: Finding the Duration

National Curriculum Objectives:

Mathematics Year 3: (3M4f) [Compare durations of events \[for example to calculate the time taken by particular events or tasks\]](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use two clues describing the duration of an event to work out when the event started. Includes increments of 10 minutes (using 12 hour clock).

Expected Use three clues describing the duration of an event to work out when the event started. Includes increments of 5 minutes (using 24 hour clock).

Greater Depth Use three clues describing the duration of an event to work out when the event started. Includes increments of 1 minute (using 24 hour clock).

Questions 2, 5 and 8 (Problem Solving)

Developing Given a duration of time, subtract increments of 10 minutes to work out how much time is left (using 12 hour clock).

Expected Given a duration of time, subtract increments of 5 minutes to work out how much time is left (using 24 hour clock).

Greater Depth Given a duration of time, subtract increments of 1 minute to work out how much time is left (using 24 hour clock).

Questions 3, 6 and 9 (Reasoning)

Developing Compare two statements describing a duration of time to work out which is the longest. Includes increments of 10 minutes (using 12 hour clock).

Expected Compare two statements describing a duration of time to work out which is the longest. Includes increments of 5 minutes (using 24 hour clock).

Greater Depth Compare two statements describing a duration of time to work out which is the longest. Includes increments of 1 minute (using 24 hour clock).

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Finding the Duration

1a. Brian arrived at a sea lion show 20 minutes after it started. Hazel arrived at 11:40 which was 10 minutes after Brian.



What time did the show start?
What time did Brian arrive?



PS

Finding the Duration

1b. Belen got to the cinema 40 minutes before the movie. Mohamed arrived at 8:30 which was 30 minutes after Belen.



What time did the movie start?
What time did Belen arrive?



PS

2a. Joe has 1 hour and 30 minutes left of P.E. He spends 20 minutes running, 40 minutes playing football, and 20 minutes playing tennis.



How much time does he have left?



PS

2b. Wilma is going to a party in 1 hour and 30 minutes. She eats her dinner for 20 minutes and then walks her dog for 40 minutes.



How much time does she have left?



PS

3a. Sofia and Billy are doing their maths work.



Sofia

I took half an hour and ten minutes to finish.

I took five lots of 10 minutes to finish.

Billy



Who took the longest?
Explain your answer.



R

3b. Lola and Micah are waiting for their friends to arrive.



Lola

Mine took half an hour and 10 minutes to arrive.

Mine took four lots of 10 minutes to arrive.

Micah



Whose friend took the longest?
Explain your answer.



R

Finding the Duration

4a. Eugene arrived at a party 10 minutes after it started. Tess arrived 20 minutes later. Sergio arrived at 15:30 which was 30 minutes after Tess.



What time did the party start?
What time did Eugene arrive?



PS

Finding the Duration

4b. Aleah got to school 15 minutes before the bell rang. Lu arrived 15 minutes before her. Julio arrived at 8:30 which was 25 minutes after Lu.



What time did the bell ring?
What time did Aleah arrive?



PS

5a. Seth has 1 hour and 10 minutes to tidy his room. He spends 25 minutes moving toys, 5 minutes making his bed, and 35 minutes putting clothes away.



How much time does he have left?



PS

5b. Helen is meeting friends in 1 hour and 55 minutes. She eats her dinner for 15 minutes, walks her dog for 45 minutes and cleans the house for 20 minutes.



How much time does she have left?



PS

6a. Miley and Ezra are doing their homework.



I took 3 quarters of an hour and 5 minutes to finish.

I took three lots of 10 minutes to finish.

Ezra



Who took the longest?
Explain your answer.



R

6b. Kiara and Nico are waiting for their bus.



My bus took half an hour and 7 minutes to arrive.

My bus took seven lots of 5 minutes to arrive.

Nico



Whose bus took the longest?
Explain your answer.



R

Finding the Duration

7a. Luigi arrived at a tea party 17 minutes after it started. Sal arrived 13 minutes later. Jill arrived at 19:12 which was 28 minutes after Sal.



What time did the tea party start?
What time did Luigi arrive?



PS

Finding the Duration

7b. Sandy went shopping 58 minutes after the mall opened. Ben arrived 21 minutes before her. Rico arrived at 8:46 which was 24 minutes after Ben.



What time did the shopping mall open?
What time did Sandy arrive?



PS

8a. India has 1 hour and 17 minutes to bake cupcakes. She spends 11 minutes preparing ingredients, 27 minutes mixing the batter and 13 minutes pouring batter into bun cases.



How much time does she have left?



PS

8b. Piper the Witch has 1 hour and 3 minutes to brew a potion. She mixes ingredients for 27 minutes, lets it boil for 18 minutes and cackles for 13 minutes.



How much time does she have left?



PS

9a. Alyssa and Mario are competing in a race.



I took 3 quarters of an hour minus 21 minutes to finish.

Mario

I took 11 minutes less than half an hour.



Who took the longest?
Explain your answer.



R

9b. Rhona and Bill are waiting for their plane to take off.



Mine took 7 minutes less than 3 quarters of an hour.

Rhona

Mine took 8 minutes more than 27 minutes.

Bill



Whose plane took the longest?
Explain your answer.



R

Varied Fluency
Finding the Duration

Developing

- 1a. 11:10; 11:30
- 2a. 10 minutes
- 3a. Sofia – 40 minutes; Billy – 50 minutes

Expected

- 4a. 14:30; 14:40
- 5a. 5 minutes
- 6a. Miley – 50 minutes; Ezra – 30 minutes

Greater Depth

- 7a. 18:14; 18:30
- 8a. 26 minutes
- 9a. Alyssa – 24 minutes; Mario – 19 minutes

Varied Fluency
Finding the Duration

Developing

- 1b. 8:40; 8:00
- 2b. 30 minutes
- 3b. Both friends – 40 minutes.

Expected

- 4b. 8:35; 8:20
- 5b. 35 minutes
- 6b. Kiara's bus – 37 minutes; Nico's bus – 35 minutes

Greater Depth

- 7b. 7:45; 8:43
- 8b. 5 minutes
- 9b. Rhona's plane – 38 minutes; Bill's plane – 35 minutes