Hours, Minutes and Seconds

1a. True or false? Explain why.

A.   30 minutes   **>**   1 hour

B.   2 minutes 30 seconds   **<**   180 seconds

1b. True or false? Explain why.

A.   240 seconds   **=**   4 minutes
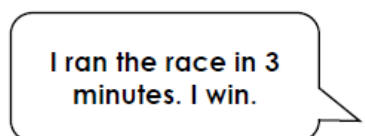
B.   3 hours   **>**   240 minutes

2a. Haleema says,

I ran the race in 210 seconds. I win.

Sami says,

I ran the race in 3 minutes. I win.
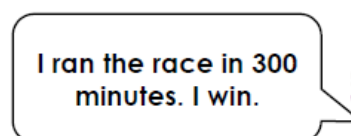
Explain who is correct.

2b. Jo says,

I ran the race in 4 hours 30 minutes. I win.

Maria says,

I ran the race in 300 minutes. I win.

Explain who is correct.

3a. Everyone starts baking at the same time. Which child's cake will be ready first? Which will take longest?

Child A	60 minutes
Child B	2 hours
Child C	1 hours 30 minutes

3b. Everyone starts baking at the same time. Which child's biscuits will be ready first? Which will take longest?

Child A	4 minutes 30 seconds
Child B	240 seconds
Child C	5 minutes

Hours, Minutes and Seconds

4a. True or false? Explain why.

A. 1 minute 15 seconds [>] 80 seconds

B. 160 minutes [<] 2 hours 30 seconds

C. 3 hours 10 minutes [<] 195 minutes

Hours, Minutes and Seconds

4b. True or false? Explain why.

A. 230 seconds [=] 3 minutes 40 seconds

B. 1 hour 55 minutes [<] 115 minutes

C. 2 minutes 25 seconds [>] 135 seconds

5a. Henry says,

I ran the race in 175 seconds. I win.

Salema says,

I ran the race in 2 minutes 45 seconds. I win.

Explain who is correct.

5b. Jonah says,

I ran the race in 4 hours 25 minutes. I win.

Ellen says,

I ran the race in 425 minutes. I win.

Explain who is correct.

6a. Everyone starts baking at the same time. Find the order in which the cakes will be ready.

Child A	130 minutes
Child B	2 hours 25 minutes
Child C	$2\frac{1}{4}$ hours

6b. Everyone starts baking at the same time. Find the order in which the biscuits will be ready.

Child A	5 minutes 45 seconds
Child B	340 seconds
Child C	$5\frac{1}{2}$ minutes

Hours, Minutes and Seconds

7a. True or false? Explain why.

A. 3 hours 96 minutes   **>**   216 minutes

B. 403 seconds   **=**   6 minutes 53 seconds

C. 717 minutes   **<**   11 hours 58 minutes

7b. True or false? Explain why.

A. 482 seconds   **<**   8 minutes 22 seconds

B. 9 hours 25 minutes   **<**   575 minutes

C. 7 minutes 76 seconds   **>**   446 seconds

8a. Ida says,

> I ran the race in 6 hours 58 minutes. I win.

Umer says,

> I ran the race in 428 minutes. I win.
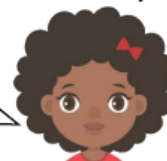
Explain who is correct.

8b. Austin says,

> I ran the race in 737 seconds. I win.

Anoushka says,

> I ran the race in 12 minutes 17 seconds. I win.

Explain who is correct.

9a. Everyone starts baking at the same time. Calculate the order in which the chocolate cakes will be ready.

Child A	$4\frac{1}{2}$ hours
Child B	282 minutes
Child C	4 hours 27 minutes
Child D	$4\frac{3}{4}$ hours

9b. Everyone starts baking at the same time. Calculate the order in which the buns will be ready.

Child A	11 minutes 44 seconds
Child B	$11\frac{3}{4}$ minutes
Child C	744 seconds
Child D	$11\frac{1}{4}$ minutes

Reasoning and Problem Solving
Hours, Minutes and Seconds

Developing
1a. A is false because 1 hour = 60 minutes. So 30 minutes < 1 hour. B is true.
2a. Sami is correct because 3 minutes = 180 seconds which is fewer than 210 seconds.
3a. Child A's cake will be ready first as 60 minutes = 1 hour. Child B's cake will take longest as 2 hours = 120 minutes.

Expected
4a. A is false because 1 minute 15 seconds = 75 seconds which is < 80 seconds. B is false because 160 minutes = 2 hours 40 minutes which is > 2 hours 30 minutes. C is true.
5a. Salema is correct because 2 minutes 45 seconds = 165 seconds which is fewer than 175 seconds.
6a. Child A (130 minutes), Child C (135 minutes), Child B (145 minutes).

Greater Depth
7a. A is true. B is false because 403 seconds = 6 minutes 43 seconds which is < 6 minutes 53 seconds. C is true.
8a. Ida is correct because 6 hours 58 minutes = 418 minutes which is fewer than 428 minutes.
9a. Child C (267 minutes), Child A (270 minutes), Child B (282 minutes), Child D (285 minutes).

Reasoning and Problem Solving
Hours, Minutes and Seconds

Developing
1b. A is true. B is false because 3 hours = 180 minutes. So 3 hours < 240 minutes.
2b. Jo is correct because 4 hours 30 minutes = 270 minutes which is fewer than 300 minutes.
3b. Child B's biscuits will be ready first as 240 seconds = 4 minutes. Child C's biscuits will take longest as 5 minutes = 300 seconds.

Expected
4b. A is false because 230 seconds = 3 minutes 50 seconds which is > 3 minutes 40 seconds. B is false because 1 hour 55 minutes = 115 minutes so they are both equal. C is true.
5b. Jonah is correct because 4 hours 25 minutes = 265 minutes which is fewer than 425 minutes.
6b. Child C (330 seconds), Child B (340 seconds), Child A (345 seconds).

Greater Depth
7b. A is true. B is true. C is true.
8b. The race was a draw. 737 seconds = 12 minutes 17 seconds.
9b. Child D (675 seconds), Child A (704 seconds), Child B (705 seconds), Child C (744 seconds).