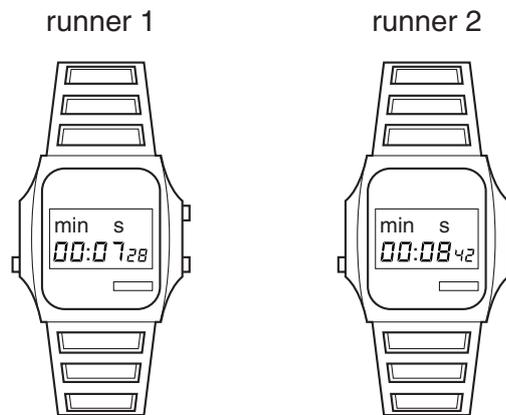


MEASURING TIME

MARKSCHEME+EXPERT SOLUTION

1 The digital stopwatches show the finishing times of two runners in a race.

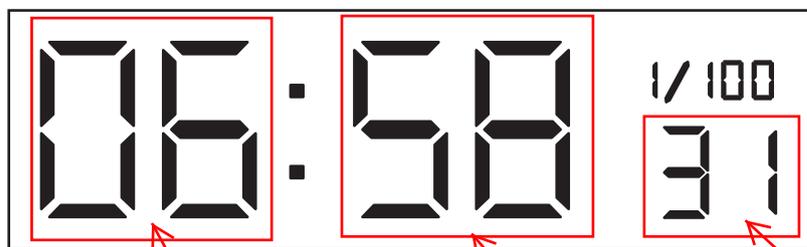


What is the time difference between the two runners?

- A** 1.14 s
 B 7.28 s
 C 8.42 s
 D 15.70 s

Time difference = $8.42\text{s} - 7.27\text{s} = 1.14\text{s}$

2 A stopwatch is used to time a student running a 1500 m race.

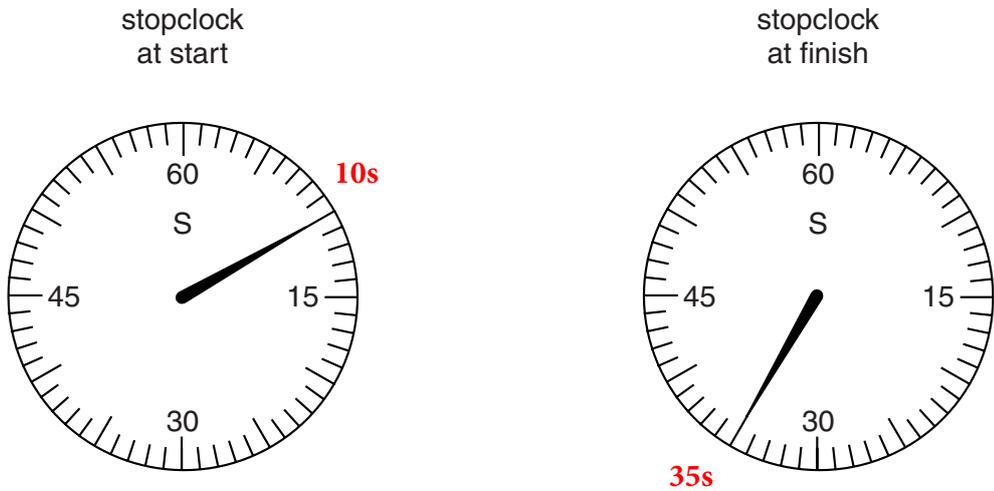


What is the reading on the stopwatch?

- A** 658.31 seconds
 B 6 minutes 58.31 seconds
 C 6.58 minutes 31 seconds
 D 6 hours 58 minutes 31 seconds

The time is

3 The diagrams show the times on a stopclock at the start and at the finish of an experiment.

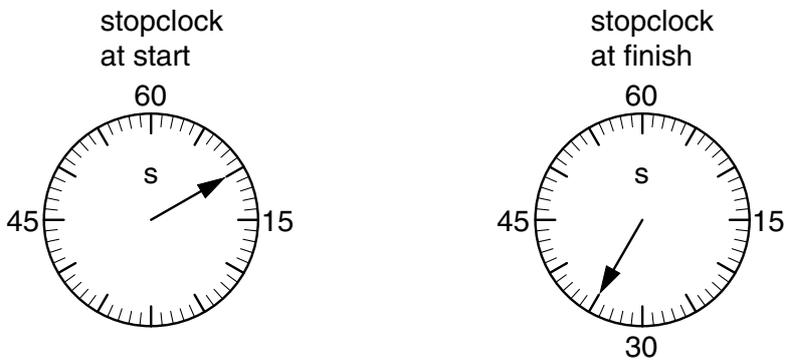


How long did the experiment take?

- A 10 s B 25 s C 35 s D 45 s

The experiment took $35s - 10s = 25s$

4 The diagrams show the times on a stopclock at the start and finish of an experiment.

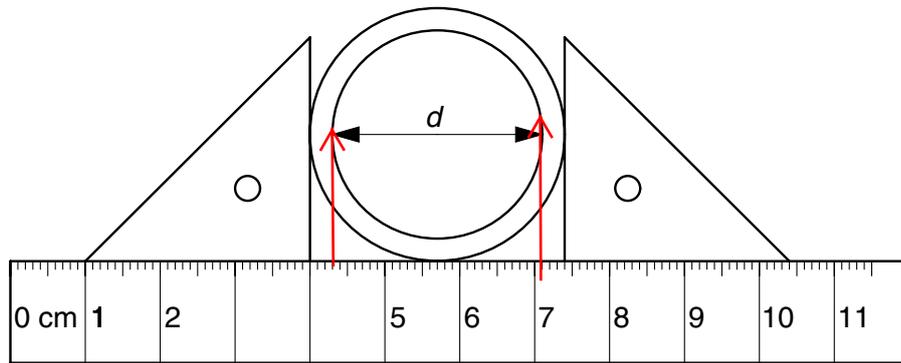


How long did the experiment take?

- A 10 s B 25 s C 35 s D 45 s

The experiment took $35s - 10s = 25s$

- 5 The diagram shows a thick-walled tube. The thickness of the wall is 3 mm.



What is the internal diameter d of the tube?

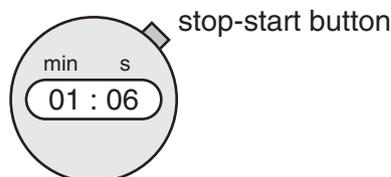
- A 2.8 cm B 3.1 cm C 3.4 cm D 7.4 cm

Internal diameter = $d = 7.1 \text{ cm} - 4.3 = 2.8 \text{ cm}$

2

- 6 The diagram shows a stopwatch, originally set at 00:00.

When a car was first seen, the stop-start button was pressed. When the car passed the observer, the stopwatch showed 01:06.

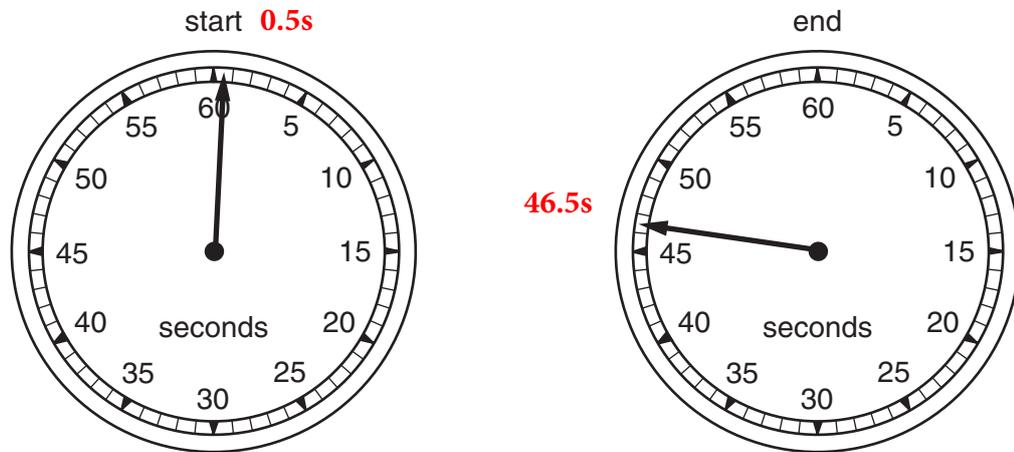


How long did the car take to reach the observer?

- A 1.06 seconds
B 6 seconds
 C 66 seconds
D 106 seconds

1 minute + 6 seconds = 60 minutes + 06 seconds = 66 seconds

- 7 A stopwatch is used to time a race. The diagrams show the watch at the start and at the end of the race.

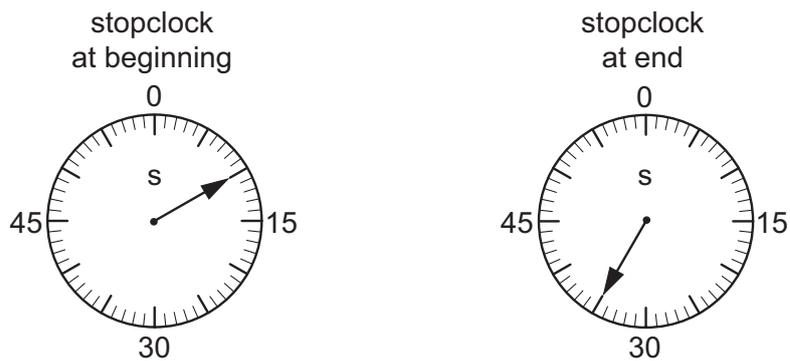


How long did the race take?

- A 45.7 s B 46.0 s C 46.5 s D 47.0 s

The time it took for the race = $46.5\text{s} - 0.5\text{s} = 46\text{s}$

- 8 The diagrams show the times on a stopclock at the beginning and at the end of an experiment.



How long did the experiment take?

- A 10 s B 25 s C 35 s D 45 s

The time it took for the xperiment = $35\text{s} - 10\text{s} = 25\text{s}$

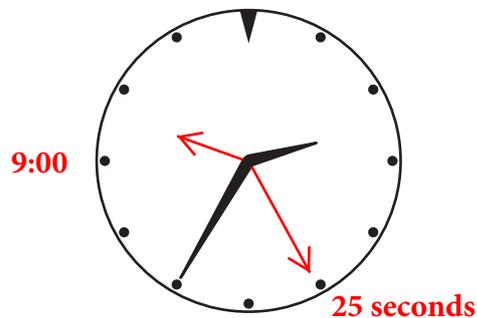
2 Four athletes run twice around a track. The table shows their times at the end of each lap.

Which athlete runs the second lap the fastest?

athlete	time at end of first lap/s	time at end of second lap/s
A	22.99	2.99
B	23.04	3.04
C	23.16	3.16
D	23.39	3.39

Speed=dist/time
 A=>22.99/47.04=0.488m/s
 B=>23.04/47=0.490m/s
 C=>23.16/47.180.4908m/s
 D=> 23.39/47.24=0.495m/s
 Hence D is the fastest

10 The diagram shows the image of a clock in a plane mirror.



What time is shown?

- A 02:25 B 02:35 C 09:25 D 09:35

The original time is 09:25