Name ANSWERS	Class

MATHS TEACHER HUB

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Time calculations

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1F** question you are not allowed to use a calculator.
- If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

1 Write 180 minutes in hours.

3 hours

June 2019 – Paper 1F **(Total for Question 1 is 1 mark)**

2 How many minutes are there in $3\frac{1}{4}$ hours?

60 + 60 + 60 + 15

195 minutes

Specimen 1 – Paper 1F **(Total for Question 2 is 1 mark)**

3 What is the time 2 hours 40 minutes after 8.05 am?

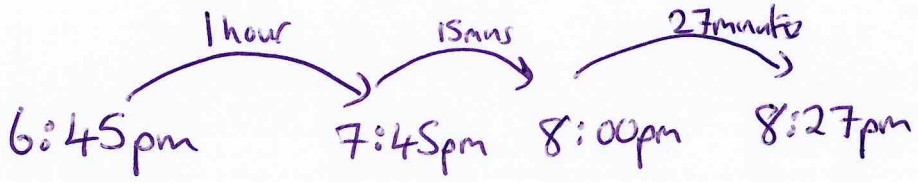
10:45 am

November 2021 – Paper 3F **(Total for Question 3 is 1 mark)**

4 The film starts at 6.45 pm.
The film lasts 102 minutes.

What time does the film finish?

102 minutes = 1 hour 42 minutes



8:27pm

(2)

(Total for Question 4 is 2 marks)

6 Liz is watching a film at the cinema.

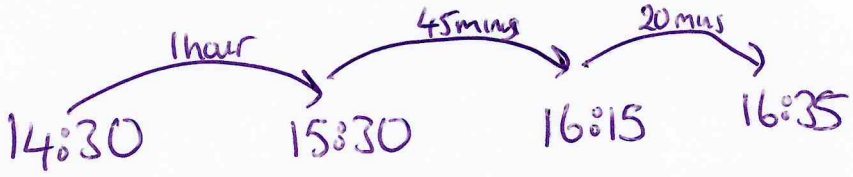
The film started at 1430
The film is 105 minutes long.

When the film ends, Liz takes 20 minutes to get to the bus stop.

A bus leaves the bus stop at 1645

Does Liz get to the bus stop in time to get this bus?
You must show all your working.

105minutes = 1 hour 45minutes



Yes Liz gets to the bus stop in time for the bus.

(Total for Question 6 is 3 marks)

6 Here is part of a train timetable from Swindon to London.

Swindon to London							
Swindon	06 10	06 27	06 41	06 58	07 01	07 17	07 28
Didcot	06 27	06 45	06 58	–	07 18	–	07 45
Reading	06 41	06 59	07 13	07 28	07 33	07 43	08 00
London	07 16	07 32	07 44	08 02	08 07	08 14	08 33

(a) How long should the 06 58 train from Swindon take to get to London?

64 minutes

(1)

Clare says,

"All these trains take more than one hour to get from Swindon to London."

(b) Is Clare correct?
You must give a reason for your answer.

Claire is wrong, the 07:17 train takes 57 minutes

(1)

(Total for Question 6 is 2 marks)

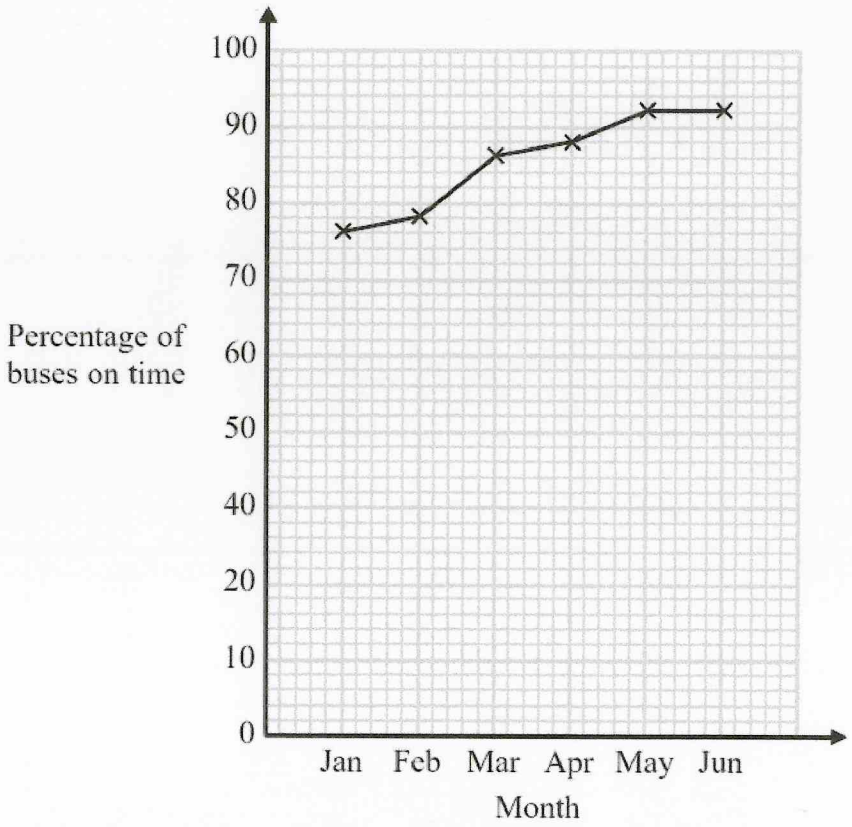
7 Work out the difference, in minutes, between 1 hour 25 minutes and $1\frac{1}{4}$ hours.

1 hour 25 minutes > 1 hour 15 minutes

10 minutes

November 2019 – Paper 1F **(Total for Question 7 is 2 marks)**

8 Chrissy drew this graph to show the percentage of buses that got to a bus stop on time for six months.



(a) Write down **one** thing that is wrong with the graph.

30 missing from the vertical axis

(1)

(b) Describe the trend in the percentage of buses that got to the bus stop on time.

The percentage of buses on time is increasing

(1)

November 2017 – Paper 2F **(Total for Question 8 is 2 marks)**

9 This is part of a bus timetable between Bury and Manchester.

Bury	0825	0855	0915	0930	0945	1005
Whitefield	0834	0904	0924	0939	0954	1014
Heaton Park	0846	0916	0936	0951	1006	1027
Cheetham	0856	0926	0946	1001	1016	1037
Manchester	0905	0935	0955	1010	1025	1048

(a) How many minutes should the 08 25 bus take to go from Bury to Manchester?

40 minutes

(1)

Daniel goes from Whitefield to Manchester by bus.

Daniel takes 17 minutes to get from his house to the bus stop in Whitefield.
He takes 15 minutes to get from the bus stop in Manchester to work.

Daniel has to get to work by 10 am.
He leaves his house at 8.45 am.

(b) Does Daniel get to work by 10 am?
You must show all your working.

House —(+17mins)→ Bus stop

8:45am 9:02

Bus leaves Whitefield → Gets to Manchester —(+15mins)→ Gets to work

9:04 9:35 9:50am

Yes Daniel gets to work by 10am

(3)

(Total for Question 9 is 4 marks)

9 Davos is a cleaner.

The table shows information about the time it will take him to clean each of four rooms in a house.

Room	Time
Kitchen	2 hours
Sitting room	1 hour 40 minutes
Bedroom	$1\frac{1}{2}$ hours
Bathroom	45 minutes

Davos wants to clean all four rooms in one day.
He will have breaks for a total time of 75 minutes.

Davos is going to start cleaning at 9 am.

Will he finish cleaning by 4 pm?
You must show all your working.

2 hours (kitchen)
+ 1 hour 40 mins (sitting room
+ 1 hour 30 mins (Bedroom)
+ 45 mins (Bathroom)
+ 75 mins (Breaks)

4 hours 190 minutes
7 hours 10 minutes

9am + 7 hours + 10 minute = 4:10pm

No Davos will not finish by 4pm.

(Total for Question 9 is 3 marks)

10 Wayne begins walking at 8 30 am.
He walks for 1 hour and 45 minutes.

Wayne then rests for 15 minutes.
He then walks for 85 minutes to a cafe.

Does Wayne get to the cafe before 12 noon?
You must show how you get your answer.

1 hour 45 minutes (walk)
+ 15 minutes (rest)
+ 85 minutes (walk)

1 hour 145 minutes
= 3 hours 25 minutes

8:30am + 3 hours + 25 minutes = 11:55am

Yes Wayne does get to the cafe before 12 noon.

(Total for Question 10 is 4 marks)

10 Here is part of a bus timetable between Wigan and Bolton.

Wigan	07 20		07 40		07 55
Blackrod	07 49		08 09		08 24
Horwich	08 00	08 14	08 20	08 29	08 36
Lostock	08 09	08 20	08 29	08 37	08 44
Park Road	08 14	08 34	08 41	08 48	08 58
Bolton	08 32	08 51	08 58	09 05	09 15

(a) How many minutes should the 07 20 bus take to go from Wigan to Lostock?

49 minutes

(2)

Alison goes from Blackrod to Bolton by bus.

One day Alison leaves her house at 08 00
She takes 7 minutes to walk to the bus stop in Blackrod.
She takes 15 minutes to walk from the bus stop in Bolton to work.

Alison needs to be at work for 09 20

(b) Will Alison get to work for 09 20?
You must show how you get your answer.

House 8:00am → Bus stop 8:07am → Bus 8:09am → Bolton 8:58am

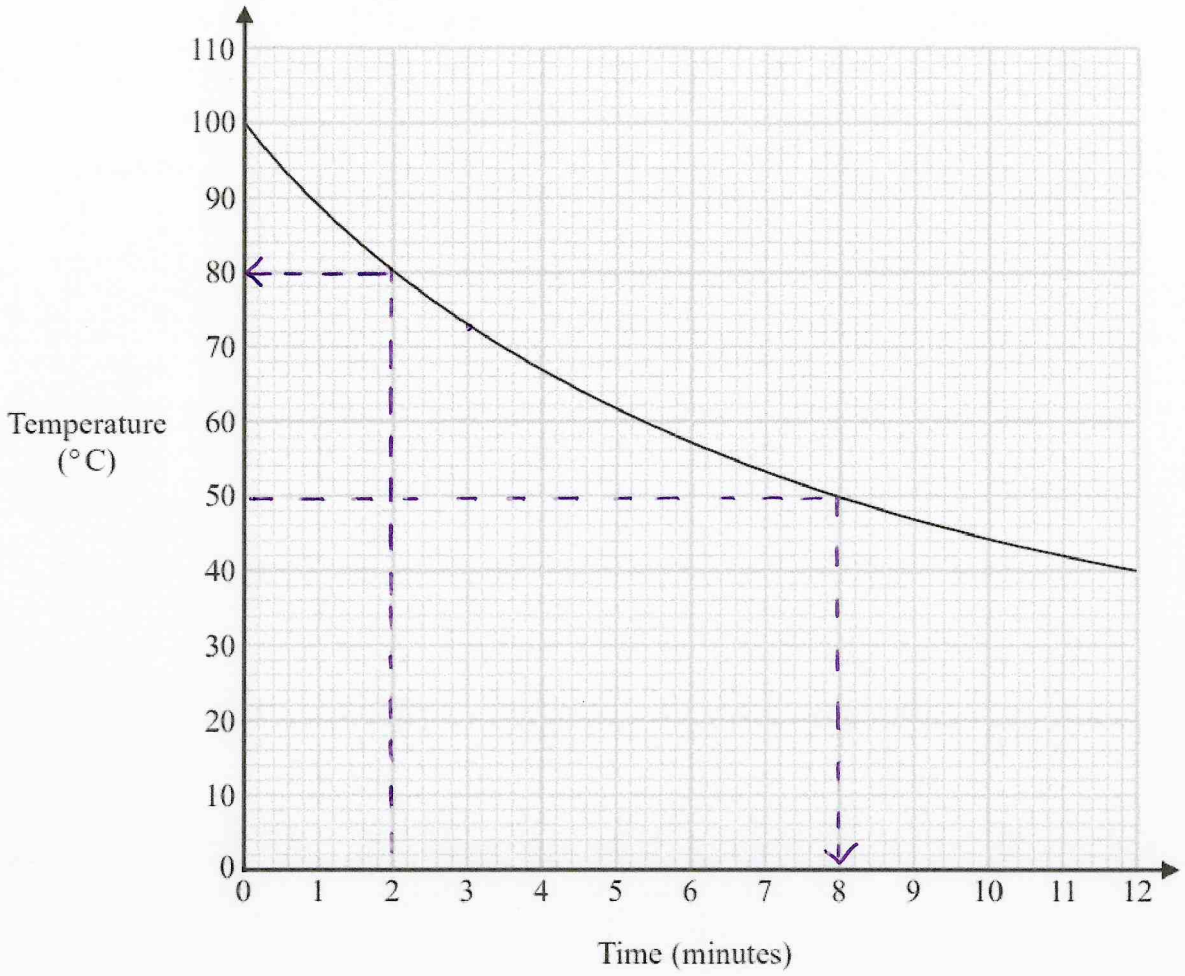
+ 15mins → Work 9:13am

Yes Alison gets to work for 9:20am

(3)

(Total for Question 10 is 5 marks)

10 The graph shows information about the time, in minutes, a liquid has been cooling and the temperature of the liquid in °C.



(a) What is the temperature of the liquid at time 2 minutes?

80 °C

(1)

Pam recorded the time when the liquid had a temperature of 50° C.

(b) Write down this time.

8 minutes

(1)

Pam says that the temperature of the liquid drops more in the first 3 minutes of cooling than it does between time 9 minutes and time 12 minutes.

(c) Is Pam correct?
Give a reason for your answer.

Yes Pam is correct.

1min → 3rd minute
100°C → 73°C = 27°C

9minute → 12th minute
47°C → 40°C = 7°C

(1)

(Total for Question 10 is 3 marks)

11 (a) Write 196 minutes in hours and minutes.

60 + 60 + 60
180

3 hours 16 minutes

(2)

November 2021 – Paper 3F **(Total for Question 11 is 2 marks)**

11 There are 8 episodes in a TV series.
Each episode lasts 45 minutes.

Work out the total time that the 8 episodes last.
Give your answer in hours.

8 x 45minutes = 360

6 hours

June 2024 – Paper 3F **(Total for Question 11 is 2 marks)**

12 A chess match lasted $3\frac{1}{4}$ hours. → 3hours 15 minutes

The match finished at 14 10

At what time did the chess match start?

10:55

November 2023 – Paper 3F **(Total for Question 12 is 2 marks)**

12 Elena spent 120 minutes at a sports centre.

She played badminton for 50 minutes.

She used the swimming pool for $\frac{1}{6}$ of the 120 minutes.

She used the gym for 20% of the 120 minutes.

She then spent the rest of the 120 minutes in the cafe.

$\frac{1}{6}$ of 120 = 20 minutes

20% of 120 = 24 minutes

(a) Work out the total time, in minutes, that Elena spent in the cafe.

Badminton = 50mins

Swimming = 20mins

Gym = 24mins

94

120

− 94

26 in the cafe

26

..... minutes

(4)

Elena got to the sports centre at 1.30 pm.

She had asked her friend to meet her in the cafe at 3 pm.

(b) Did Elena get to the cafe by 3 pm?

Give a reason for your answer.

94 minutes = 1 hour 34 minutes

No she did not get to the cafe by 3pm.

She got there at 3:04pm

(1)

(Total for Question 12 is 5 marks)

12 Here is part of a train timetable.

Brighton	07 22	07 29	07 32
London	09 00	08 32	08 48

Graham gets to the station in Brighton at 07 15

(a) Work out how many minutes he has to wait until 07 22

7 minutes

(1)

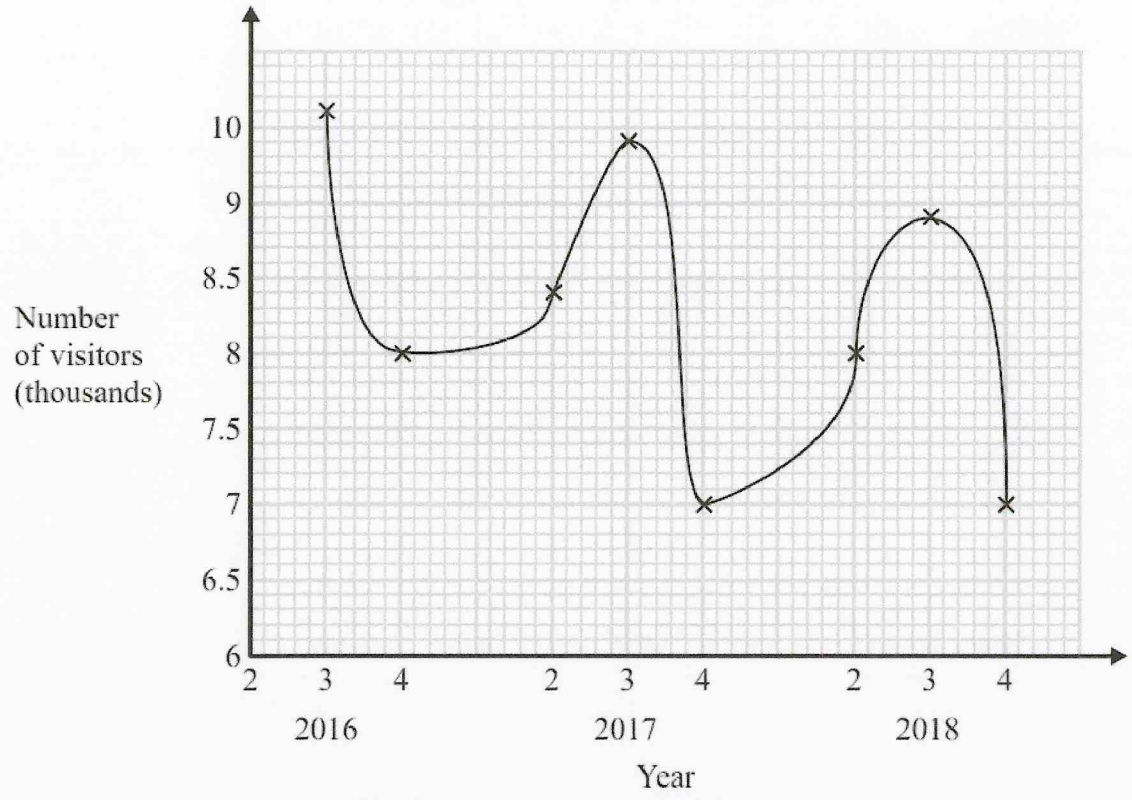
(b) Work out how long it will take the 07 22 train to get to London.

1 hour 38 minutes

(2)

(Total for Question 12 is 3 marks)

27 Sean has drawn a time series graph to show the numbers, in thousands, of visitors to a fun park.



Write down two things that are wrong or could be misleading with this graph.

1 The points should be joined with straight lines

2 9.5 is missing from the vertical axis

(Total for Question 27 is 2 marks)