

Candidate Name (First, Middle, Last)

Candidate enrolment number

DOB (DDMMYYYY)

Candidate signature

Assessment date (DDMMYYYY)

Centre number

Total marks	
Task	Mark
Total	

Length of assessment:

2 hours

You should have the following for this assessment

- a pen with black or blue ink
- a pencil and eraser for graph/diagram work
- a 30cm ruler
- graph paper
- a calculator
- a protractor.

General instructions

- There are **3** tasks to complete.
- Each task is worth 25 marks.
- You should spend an equal amount of time on each task.
- Read through each task carefully.
- The maximum marks available are shown for each question.
- Show your working out, you may get marks for it.
- Check your calculations.
- You may use a calculator.
- You may use a dictionary.

Task 1 – Star gazing

There are 25 marks for this task.
You should check all your work as you go along.



Introduction

This task is about attending a stargazing event.
A stargazing event is an activity where people meet together to observe the stars.

To complete this task you will need to

- work out the costs for three different events
- choose one of the events
- summarise your results in a table.

You will need to check your calculations and review your work.

1A

You decide to go to a stargazing event with friends.
There are **12** people in the group.

There are three possible events to choose from.
The costs for the events are shown below.

	Event		
	Leo	Orion	Copus
Dates	Wednesday 24 th May	Saturday 3 rd June	Saturday 10 th June
Group ticket deals	£64 per 4 people	£144 per 6 people	£18 per person for groups over 6 people
Extra discounts on event cost	15% for groups over 8 people	$\frac{1}{8}$ off this month only	Buy 5 tickets get 1 free

Work out the cost for each event for your group.

Show your working

Leo £ _____

Orion £ _____

Copus £ _____

(6 marks)

1B

You will have to pay a deposit for your group's attendance at the event. You will pay the remaining balance later.

The table shows the deposits for the events.

	Event		
	Leo	Orion	Copus
Deposit required	12.5%	10%	25%

Look at your answers in **Question 1a**.

Work out the deposit you will need to pay for **each** event.

Show your working

Deposit for Leo £ _____

Deposit for Orion £ _____

Deposit for Copus £ _____

(3 marks)

1C

The balance must be paid four weeks before the event.

Choose **one** of the events to attend.

Explain why you chose this event.

Chosen event

(Tick one box)

Leo (Wednesday 24th May)	<input type="checkbox"/>
Orion (Saturday 3rd June)	<input type="checkbox"/>
Copus (Saturday 10th June)	<input type="checkbox"/>

Explanation

(1 mark)

1D

Work out the balance for this event and the latest date it must be paid.

April						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Show your working

Balance £ _____

Latest date it must be paid _____

(2 marks)

1E

There are 12 people in your group.

You need to split the costs equally between each person in the group.

Look at your answers in **1B** and **1C**.

Work out the amount that **each person** must pay for

- the deposit for the chosen event
- the balance for the chosen event.

Show your working

Deposit per person £ _____

Balance per person £ _____

(3 marks)

1F

Check one of your calculations in **1B** or **1D**.

Check it by a different method to the one you used originally.

The calculation I will check is in

1B ☐

1D ☐

(Tick one box)

Write your check here

(2 marks)

1G

You need to let the rest of the group know about the costs and dates for the event.

Make a summary table to show the total costs for the whole group and for each person. Include the deposits, the balances and dates.



(5 marks)

1H

You were asked to work out the costs for three different events, to choose one of the events and to summarise your results in a table.

You need to think about **how well** you did the task.

Make **three** comments.

Think about

- any other information that you would have liked
- how sensible your answers were
- how well your methods worked
- anything you found difficult
- things you might do differently if you had to tackle a similar problem.



Comment 1

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Comment 2

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Comment 3

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(3 marks)

Task 2 – Holiday in Sweden

There are 25 marks for this task.
You should check all your work as you go along.



Introduction

This task about a holiday in Sweden.

To complete this task you will need to work out

- exchange rates
- flight times
- the route for the sightseeing trip.

You will need to check your calculations.

2A

You and your friend will meet in Sweden for a holiday.

Your friend will travel from the USA.

You will travel from the UK.

You both need to exchange money into Swedish krona.

The exchange rate for GBP (British Pound) is given below.

Exchange rates
£1 = 10.68 Swedish krona
1 Swedish krona = 0.12 US dollars

You will each take 8500 Swedish krona to spend.

Work out how much you need to exchange in pounds **and** how much your friend will need to exchange in dollars.

Show your working

Pounds £ _____

Dollars \$ _____

(4 marks)

2B

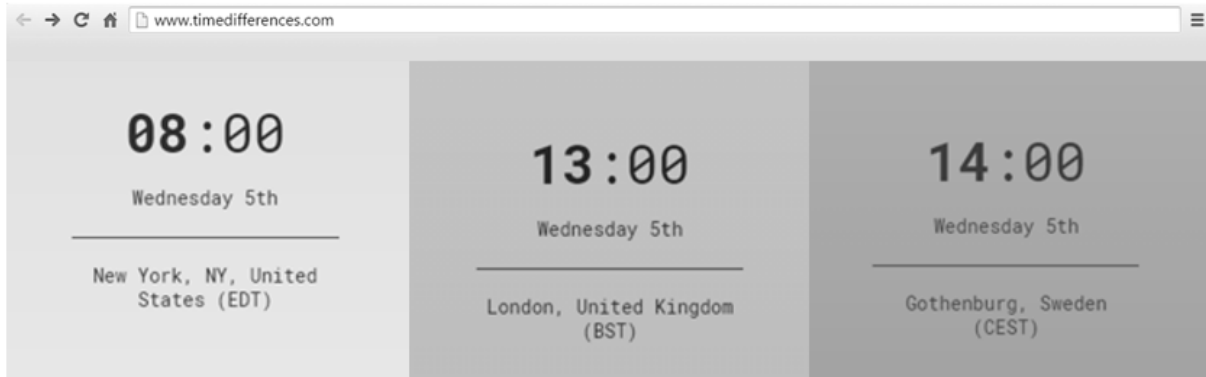
You will meet your friend at Gothenburg airport.

Your friend will be travelling from New York.

There is a time difference between New York and Gothenburg.

You find a webpage that shows the time difference.

Work out the time difference between New York and Gothenburg.



Show your working

Time difference _____

Your friend's flight leaves New York at 15:30.

The flight takes 9 hours 30 minutes to get to Gothenburg.

Work out what time the flight will land in Gothenburg.

Show your working

Time flight will land _____

(4 marks)

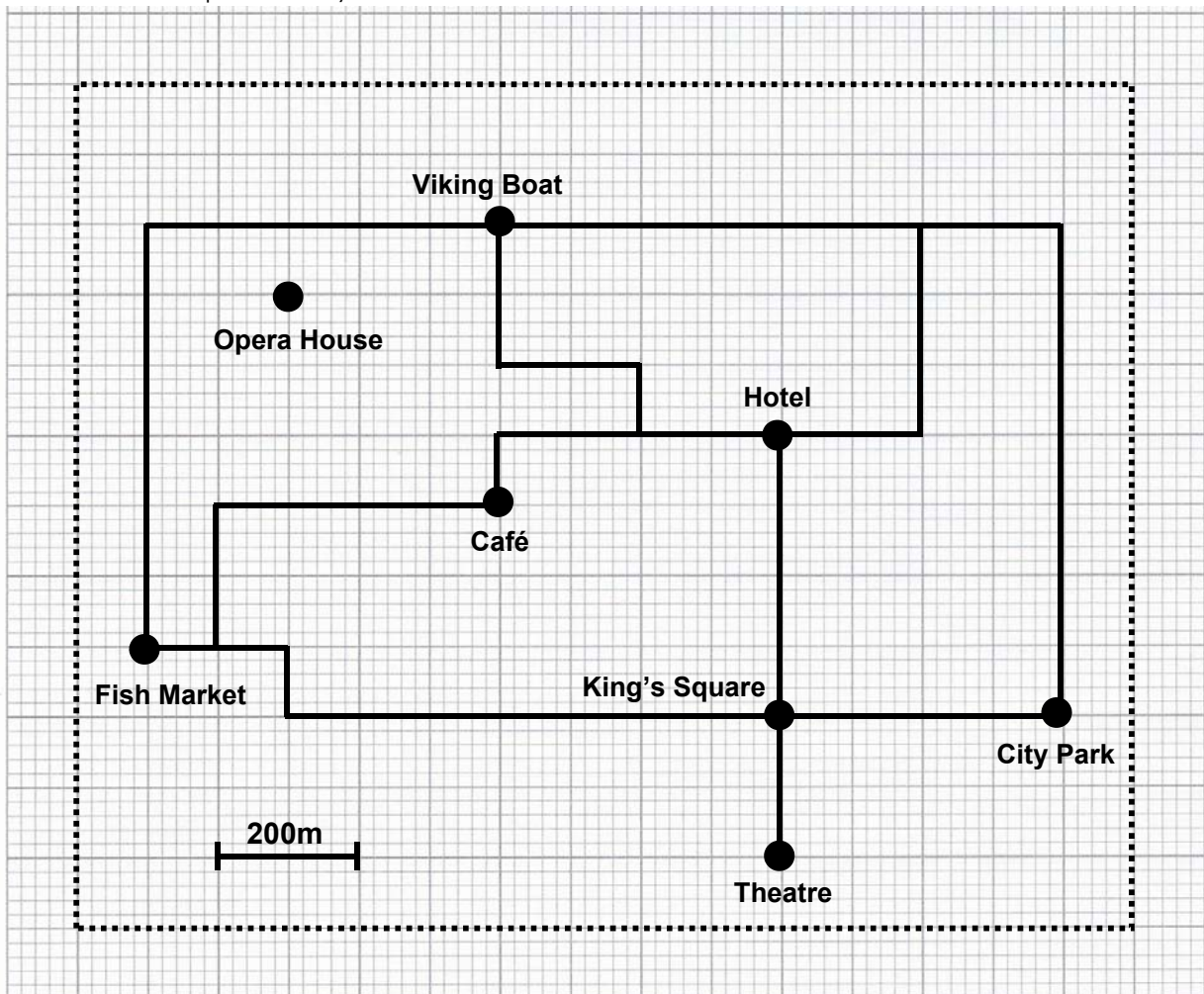
2C

You and your friend will go on a sightseeing trip in the city.

You plan a route to start and finish at the hotel.

You want to visit the City Park, Viking Boat and Fish Market and go to the café for a meal.

This is a scale map of the city.



Plan your route showing the order of the places you want to visit.

Work out the distance between each place on your route.

Work out the total distance of your route in kilometres.

Complete the table.

Space for working

Order	Places to visit	Distance
Start	Hotel	
First		
Second		
Third		
Fourth		
Finish	Hotel	
	Total distance	

(6 marks)

2D

You need to show a check of how you used the scale in **2C**.
Explain how you know that one of your answers is correct.

My check is for (Tick one box)	Start to First	
	First to Second	
	Second to Third	
	Third to Fourth	
	Fourth to Finish	

Write your check here

(2 marks)

2E

You need to know how long it will take to walk your route.

A typical person can walk at
a speed of **5 km in one hour**.

Work out how long it will take to walk between each place to visit.
Round your answers to the nearest minute.
Complete the table.

Show your working

Route from	Time (minutes)
Hotel to first place	
First place to second	
Second place to third place	
Third place to fourth place	
Fourth place back to hotel	

(4 marks)

2F

You will start the sightseeing trip at 10am.

You will stay 45 minutes at each place you visit.

You will allow one hour and a half for your meal at the café.

Make a timetable to show your arrival and departure times for each place you will visit and the time you arrive back at the hotel.

(5 marks)

Task 3 – Half marathon training

There are 25 marks available for this task.
You should check all your work as you go along.

Introduction

This task is about training to run in a half marathon event.
A half marathon is 13 miles.

To complete this task you will need to

- work out probability of winning a free gift
- work out trends for improvement
- calculate target times
- work out averages and range
- compare averages.

You will need to check your calculations.

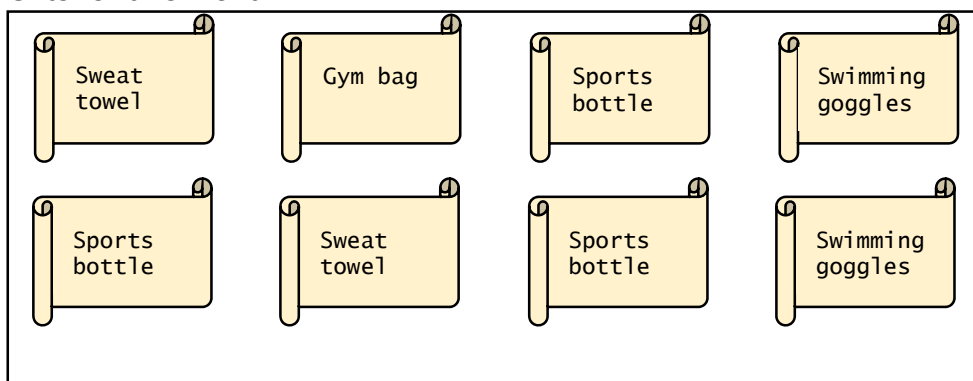


3A

You attend a gym to work on your fitness and improve your running times.

Each month the gym gives away one free gift to the first eight members who attend 10 sessions.

Gifts for this month



The free gift is chosen at random by a computer.

This month, you are the first member to attend 10 sessions.

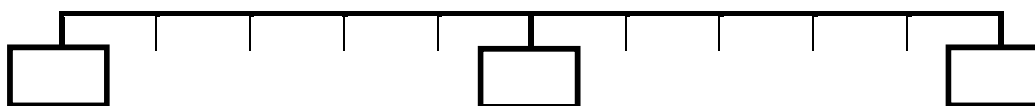
What is the chance that your free gift will be a sports bottle?

Work out this probability.

Show your result on the probability line.

Show your working

Probability _____

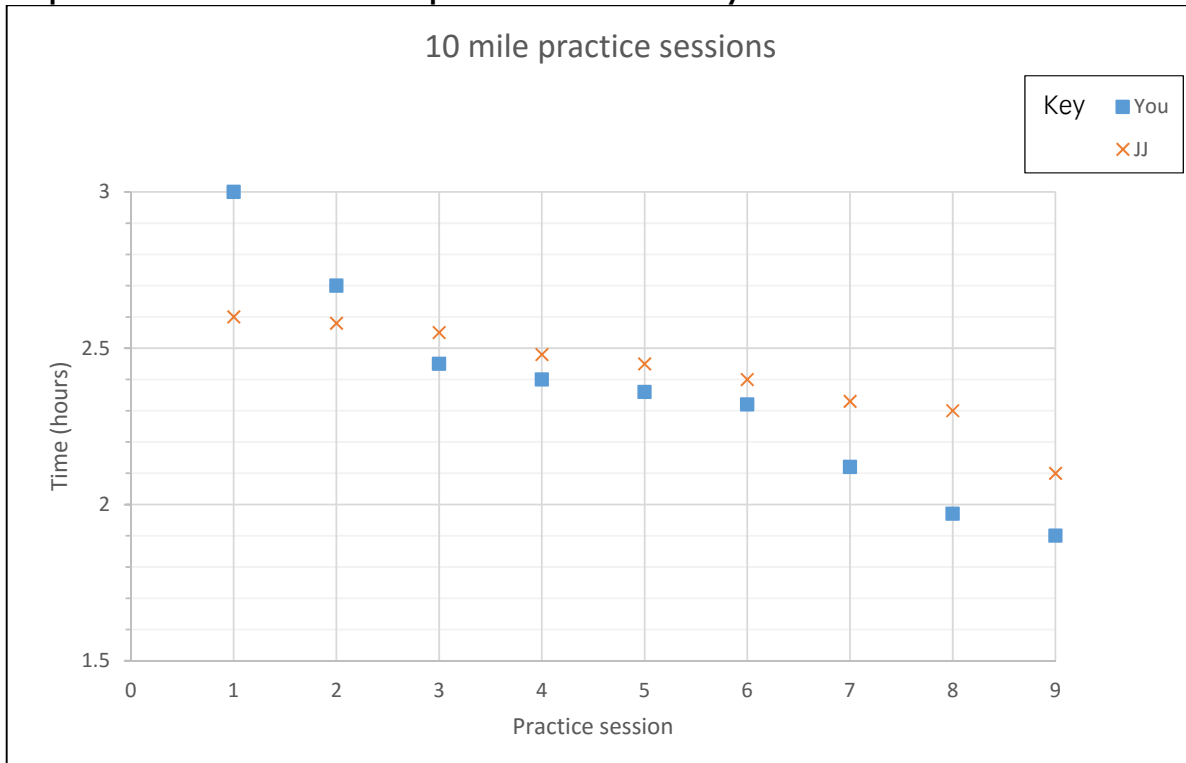


(4 marks)

3B

You train with a running partner, JJ, and you both record your last 9 practice sessions for running 10 miles.

Graph to show times for last 9 practice sessions for you and for JJ.



Improvement factor

JJ = 0.06

You = 0.12

Draw two straight trend lines (lines of best fit) on the graph, one for you and one for JJ.

Explain what the trend lines tell you about your running performance compared with JJ's. Make **two** comments.

Comment 1

Comment 2

(4 marks)

3C

You and JJ have a target time of under 2½ hours for the half marathon.
This formula predicts how long it will take to run a half marathon.

$$P = 1.36T - FW$$

Where

P = predicted time for half marathon in hours

T = time for latest practice session in hours

F = improvement factor

W = number of weeks before half marathon

The half marathon will take place in 3 weeks time.

Use the graph in **3B** to find the improvement factors and the latest practice times.

Use the formula to work out the predicted times for both you and JJ.

Will you and JJ achieve the target time?

Explain your answers using supporting calculations.

Show your working

Will you achieve the target time?

Yes ☐

No ☐

(Tick one box)

Will JJ achieve the target time?

Yes ☐

No ☐

(Tick one box)

Write your explanation here

(4 marks)

3D

These are the results for last year's half marathon for the teams in your age group (in hours:minutes:seconds).

Hobcroft Harriers	01:53:24	Fenton Flyers	01:50:48	Slade Stars	01:55:48	Wurton Athletic	02:03:00
	02:04:12		02:05:24		02:11:24		02:12:00
	02:18:36		02:14:24		02:12:12		02:52:12
	03:13:12		02:34:48		02:36:00		03:52:48

Work out the **median** time of these 16 runners.

Show your working

Median time _____

(4 marks)

3E

The mean time for these runners is 02:23:08

Compare the mean with the median from **3D**.

Comment on any differences.

Explain why the median is a better average for this data.

Comment

Explanation

(2 marks)

3F

Compare your predicted time from **3C** with the results from last year's half marathon.
Make one comment.

Show your working

Comment

(2 marks)

3G

Work out the range for all the runners.

Hobcroft Harriers	01:53:24
	02:04:12
	02:18:36
	03:13:12

Fenton Flyers	01:50:48
	02:05:24
	02:14:24
	02:34:48

Slade Stars	01:55:48
	02:11:24
	02:12:12
	02:36:00

Wurton Athletic	02:03:00
	02:12:00
	02:52:12
	03:52:48

Show your working

Range _____

Explain what the range shows.

(3 marks)

3H

Check one of your calculations in **3G**.

Use a **different** method to the one you used originally.

Write your check here

(2 marks)

Extra space for working out and answers