

# Functional Skills Mathematics

## Level 2 sample assessment

Sample paper 1

Draft worked example  
for assessment from  
September 2015

Candidate Name (First, Middle, Last)

EXAMPLE 1

Candidate enrolment number

DOB (DDMMYYYY)

Candidate signature

Assessment date (DDMMYYYY)

Centre number

Total marks	
Task	Mark
Total	

Length of assessment: 1 hour 30 minutes

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.
- You may use a dictionary.



### 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.
- Show your working out. You may get marks for it.
- Check your calculations.
- Remember to put units on your answers.
- Write all working out and answers in this booklet.

## Task 1 Cycle hire

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

### Introduction

This task is about a cycling holiday.  
 You need to hire suitable cycles and child seating for **four** adults and **two** children for 7 days.






One of the children is  $3\frac{1}{2}$  years old and weighs 3 stone.  
 The other is 18 months old and weighs 25 pounds.

You need to investigate how much it will cost.



**Children under 4 years old must be seated in a child seat or a trailer. Cycle hire centres need to know the ages and weights of children under 4 years old.**

**1 stone = 14 pounds**  
**1 kilogram = 2.2 pounds**

Bert's Bikes Cycle hire			
Type of cycle and child seating		Suitable for	Hire cost per day
Tandem		2 adults not suitable for child seats or trailers	£22.50
Adult cycle		1 adult	£14.50
Child cycle		4 – 12 years old	£6.00
Child seat		a child up to a weight of 18kg	Free
Trailer		1 or 2 children up to a total weight of 35kg	£17.50
<b>Children under 4 years old must sit in a Child seat or a Trailer</b>			

Go Bike Cycle hire		
Hire cost list		
Type of cycle and child seating	Per day	Per week (7 days)
Tandem (not suitable for child seats or trailers)	£26.50	£175
Adult cycle	£15	£70 per week
Adult cycle Special Hire Offer	2 Adult cycles for £20 per day or £90 per week	
Child cycle 4 - 12 years old	£8.50	£50
Children under 4 years old must sit in a Child Seat or a Trailer		
Child seat for a child up to a weight of 18kg	Free	
Trailer for 1 or 2 children up to a weight of 35kg	£15 per day	£99 per week

1A

You need to decide from which centre to hire suitable cycles and child seating for the **four** adults and **two** children for 7 days.

Plan how to solve this task. Write down your plan, including the steps you will use.

①  
Need to know: child seats — Which?

②  
cycles — which? weights cost

cost

③  
cycles + child seats = costs

Berts GoBike

(3 marks)

1B

Carry out your plan to investigate the costs. Show a check for at least one of your calculations.

Show your working.

Children weights

18 month 25 pounds =  $25/2.2 = 11.3636\text{kg}$

3 1/2 years 3 stone =  $3 \times 14$  pounds = 42 pounds

$42/2.2 = 19.09\text{kg}$

$11 + 19 = 30\text{kg}$  use trailer for both

Cycles

4 adults - get 4 bikes

Bert's bikes

Trailer 17.50 per day

Bikes 14.50 per day

1 trailer for 1 week =  $17.50 \times 7 = 122.50$

4 bikes for 1 week =  $14.50 \times 4 \times 7 = 406$

528.50

Go Bike

Trailer 90 per week

2 Adult bikes 90 per week

→ 4 Adult bikes 180 per week  
special offer

90.00

180.00

270.00

Check

$$\begin{array}{r} 528.50 \\ - 406 \\ \hline 122.50 \end{array}$$



(13 marks)

1C

Draw a table to present your results and compare the costs of hiring what you need from Bert's Bikes with the cost of hiring from Go Bike.

	Berts Bikes	Go Bike
4 Adult cycles	406.00	180.00
Trailer	122.50	90.00
Total	£528.50	£270.00

(4 marks)

1D

Decide which centre you will hire from.

Give **two** reasons for your choices of centre and of cycles and child seating.

centre Go Bike

Reason for centre  
cheaper

Reason for cycles and child seating  
2 children weigh less than 35kg  
Use trailer

(2 marks)

### 1E Reviewing your work

You need to review how well you did the task.

Think about how your plan and methods worked, how sensible your answers were, anything you found difficult, any other information that you would have liked. What might you do differently if you had to tackle a similar problem?

Explain **three** of the most important points.

1. My plan let me get all the prices for both so I know the cheapest
2. It was hard doing stones and pounds
3. The answers were sensible because I can see Go Bike is best deal

(3 marks)

### Task 2 Landscape garden

There are 25 marks available for this task.

You should check your work as you go along.

#### Introduction

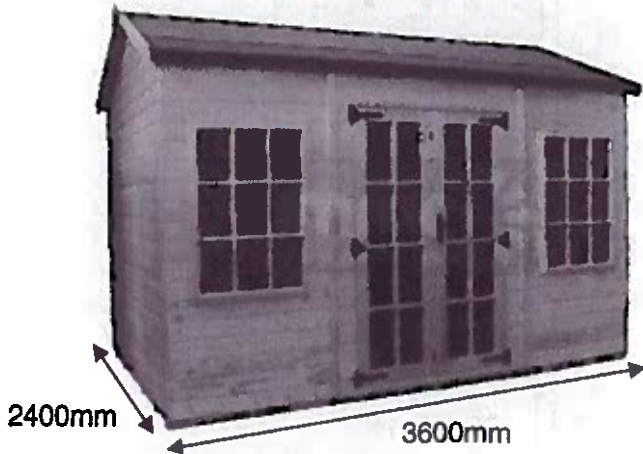
This task is about planning a garden with a summerhouse.

You work for a landscape company.

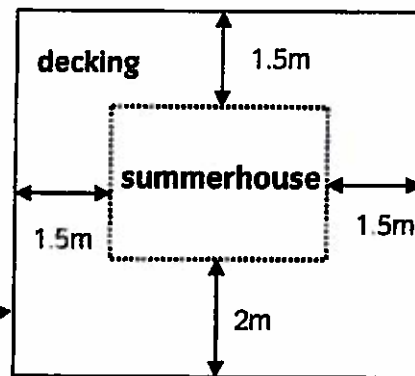
A customer wants a summerhouse, some decking and a lawn.



summerhouse



Sketch plan to show the position of the summerhouse on top of the decking



Not to scale

decking



2A

What are the dimensions of the decking?

Show your working.

$$1.5 + 3.6 + 1.5 = 6.6$$

$$1.5 + 2.4 + 2 = 5.9$$

Length 6.6 m

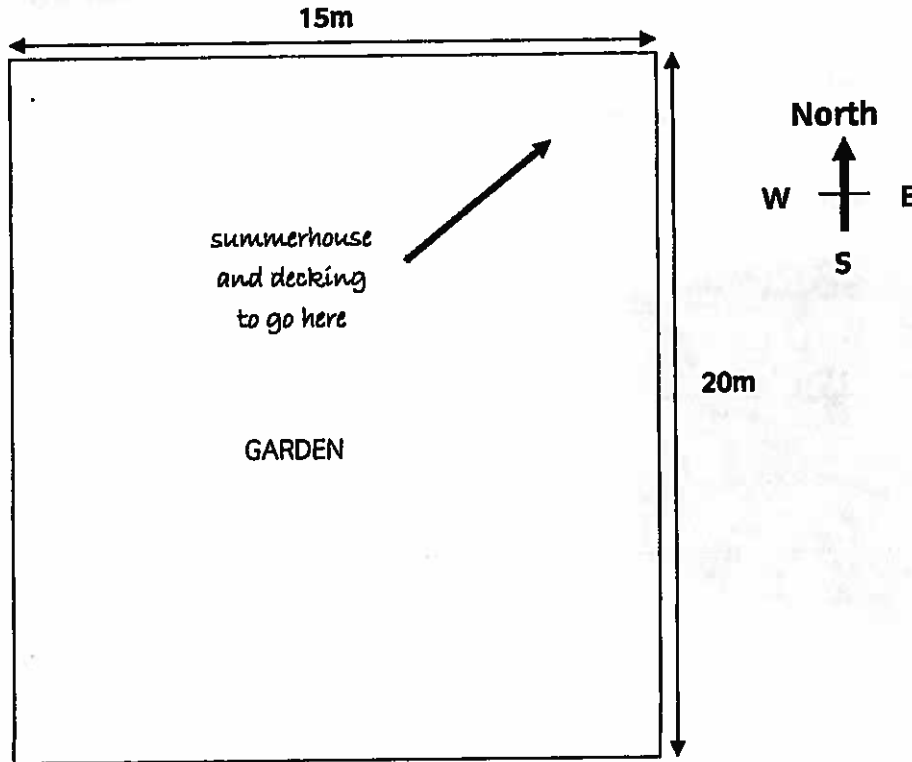
Width 5.9 m

(4 marks)

**2B**

The customer wants the decking and summerhouse to be in the top right hand corner of the garden. The doors must face south.

You have a sketch of the customer's garden.



Draw a scale plan to show the outline of the customer's garden.  
Add the decking and summerhouse to scale on your plan.

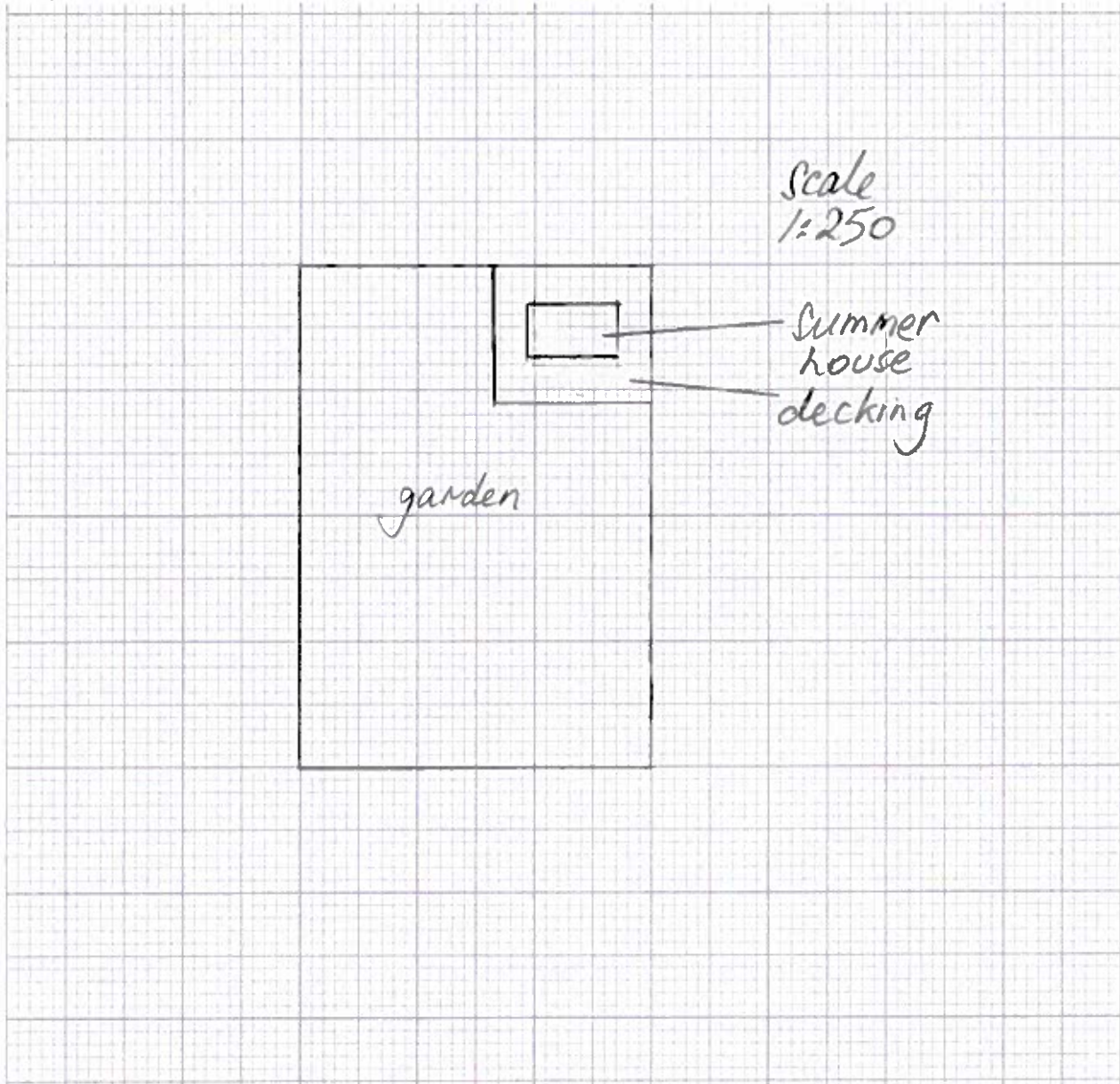
Use a suitable scale.  
Label your diagram.

**Use the graph paper on the page opposite.**

**(10 marks)**



(Original used is 2mm squared graph paper)



**2C**

You need to show a check of how you used the scale in **2B**.

Explain how you know one of the lines on your diagram is the correct scaled length.

Write your check here.

$$\begin{aligned} \text{scale is } 1:250 \\ 20\text{m} &= 2000\text{cm} \\ 2000 \div 250 &= 8\text{cm} \checkmark \end{aligned}$$

(2 marks)

**2D**

The customer wants the rest of the garden to be a new lawn. You need to buy enough grass seed.

Formula for working out grass seed

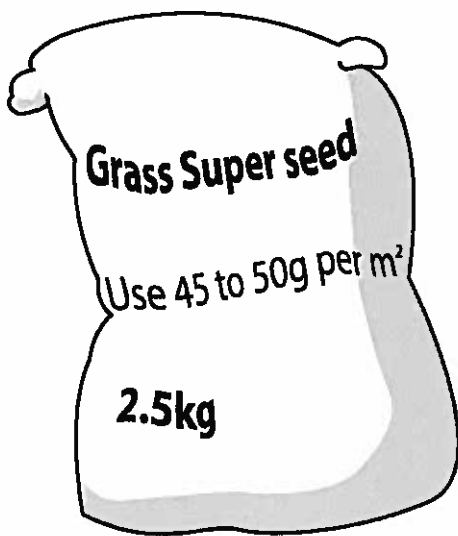
$$W = \frac{r \times A}{1000}$$

Where

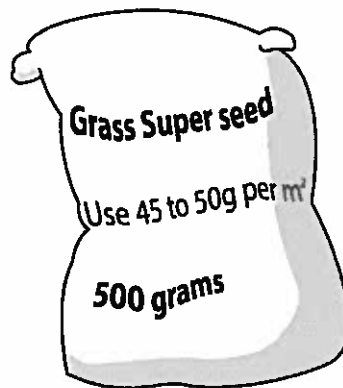
W = weight of grass seed needed (in kilograms)

r = amount of seed to use (in grams per square metre)

A = area of new lawn (in square metres)



**£14.99**



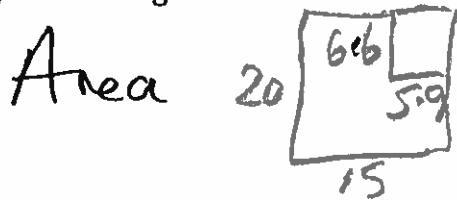
**£8.75**



**£4.75**

Work out the **cheapest** way to buy the grass seed you need and its total cost.

Show your working.



$$20 \times 15 = 300$$
$$6.6 \times 5.9 = 38.94$$
$$300 - 38.94 = 261.06 \text{ m}^2$$

$$W = \frac{50 \times 261.06}{1000} = 13.053$$

Need 13.05 kg

$$5 \times 2.5 = 12.5$$

$$6 \times 2.5 = 15$$

$$\text{Buy } \underline{6 \times 2.5 \text{ kg}} = 6 \times 14.99$$
$$= \underline{\underline{\pounds 89.94}}$$

(9 marks)

### Task 3 Hotel review

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



#### Introduction

This task is about comparing the performance of two hotels, Blues Hotel and Giltspur.

Every month the owner reviews how well the hotels are doing.

#### 3A

Both hotels send information from customer surveys.

Here is an example of a customer survey.

**The Blues Hotel**  
*Hitting all the right notes*

Customer Survey

Thank you for choosing to stay with us. We hope you enjoyed your stay.  
Before you leave please complete this survey form.  
All completed forms go into our free prize draw for Blues Hotel customers.

Name: Bradley Handbury      Contact: bradh@hundred.co.uk

Please rate our:

	Very Poor	Poor	Satisfactory	Good	Very Good
<b>SERVICES</b>	1	2	3	4	5
	Very Poor	Poor	Satisfactory	Good	Very Good
<b>STAFF</b>	1	2	3	4	5
	Very Poor	Poor	Satisfactory	Good	Very Good
<b>CLEANLINESS</b>	1	2	3	4	5

Thank you for your time – Good luck in the prize draw!

**Survey reference: Number 17**

Every month there is a prize draw for customers who complete the survey. One customer will win the prize. Last month, 20 customers completed the survey.

What chance does the customer, Bradley Handbury, have of winning the prize for last month's Blues Hotel survey?

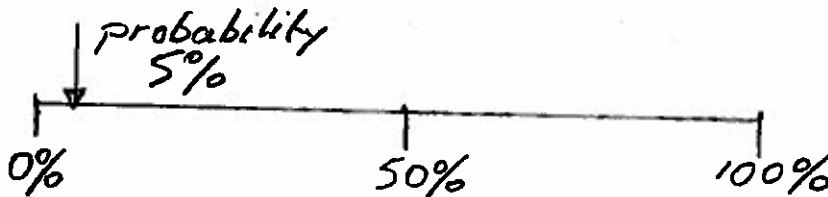
Draw a probability scale to show your answer.

Show your working.

$$1 \text{ in } 20 = \frac{1}{20}$$

Probability  $\frac{1}{20}$  or 5%

Draw your probability scale below



(4 marks)

**3B**

This table shows the results for the Blues Hotel last month.

Survey results from the Blues Hotel last month																					
		Ratings 5 = Very Good    4 = Good    3 = Satisfactory    2 = Poor    1 = Very Poor																			
Category rated	Survey number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Service		5	2	1	5	5	5	5	4	4	3	2	4	4	3	2	3	3	4	4
Staff		1	5	5	5	4	3	2	3	3	5	2	3	4	3	3	3	4	2	3	5
Cleanliness		4	2	1	4	5	2	1	4	4	1	4	2	2	4	4	4	5	4	1	4

Work out the ranges of the ratings for each category.

Explain what your ranges show.

Show your working.

Ranges for

5-1      Service           4          

5-1      Staff           4          

5-1      Cleanliness           4          

Explanation

*The scores are very varied for all of them*

(4 marks)

**3C**

Choose one of your calculations in **3B** to show a check.  
Check it by a **different** method to the one you used originally.

Write your check here.

$5 - 1 = 4$

$4 + 1 = 5$

(2 marks)

**3D**

Work out a **suitable** average for the ratings for Service and for Staff at the Blues Hotel last month. Explain why the average you used is the most suitable.

Tick the average you will use	Mean <input checked="" type="checkbox"/>	Median <input type="checkbox"/>	Mode <input type="checkbox"/>
Show your working.			
$5+2+1+5+5+5+5+4+4+3+2+4+4+3+2+3+3+4+4+4$			
$= 67$			
$67 \div 20 = 3.35$			
Service		<u>3.35</u>	
$1+5+5+5+4+3+2+3+3+5$			
$+2+3+4+3+3+3+4+2+3$			
$+5 = 68$			
$68 \div 20 = 3.4$			
Staff		<u>3.4</u>	
Explanation for your choice of average			
Mean is average			

(5 marks)

**3E**

Work out the percentage of customers who rated the Blues Hotel as Good or Very Good for Cleanliness last month.

Show your working.
$4 \text{ OR } 5 = 12$
$12 \div 20 = .6$
$.6 \times 100 = 60$
<u>60</u> %

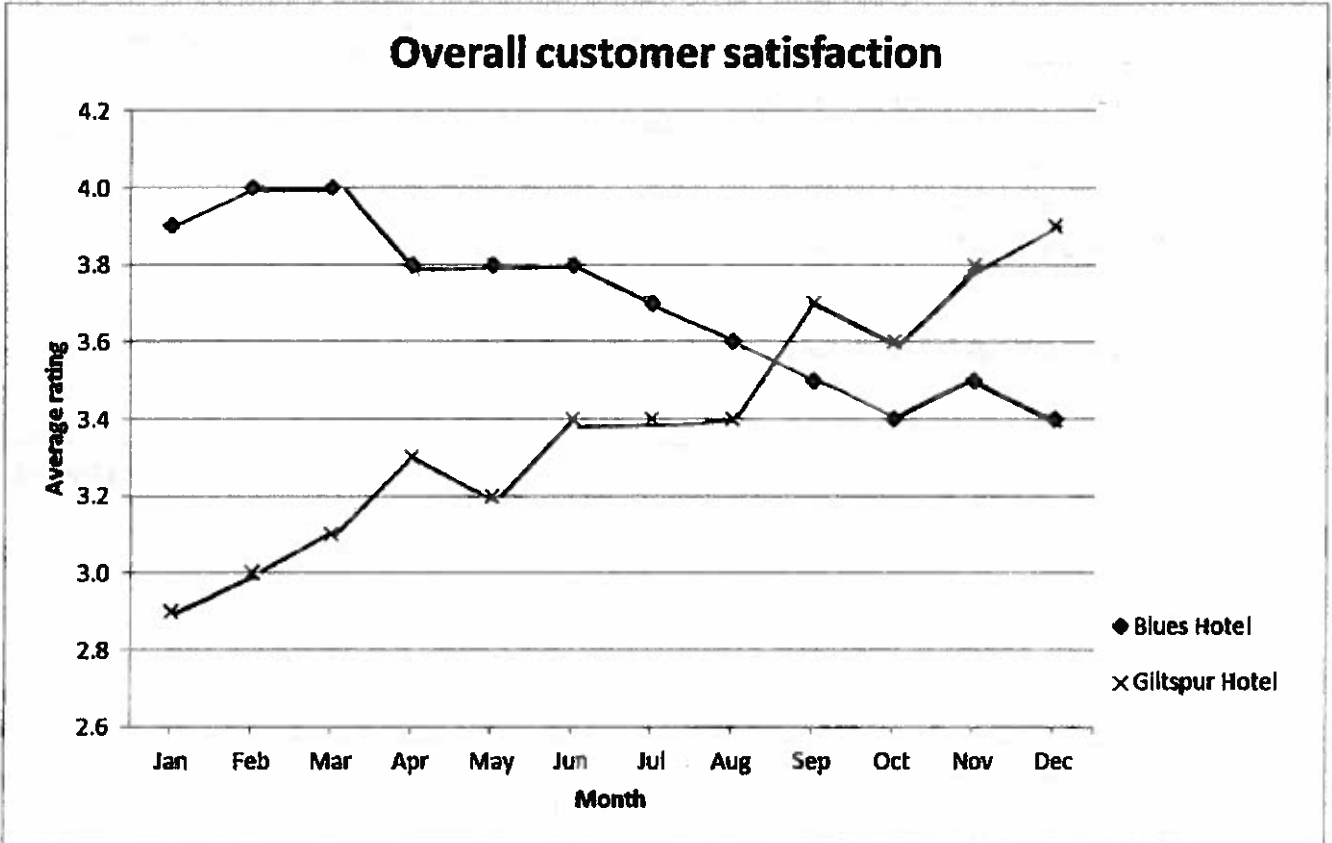
(3 marks)

3F

The owner also wants to know if the performance of the hotels is improving.

You use all the results for the year to find the overall customer satisfaction for each month.

This chart summarises your results.



Draw **two** trend lines (lines of best fit) on the graph, one for each hotel.

What do the trend lines (lines of best fit) tell you? Make one comment about each hotel.

Blues Hotel comment

*Blues is going down*

Giltspur Hotel comment

*Its going up*

(4 marks)



36

The owner says that the Giltspur Hotel is performing much better than the Blues Hotel.

**Summary of survey results from the Giltspur Hotel for last month**

The Giltspur Hotel	
On average our customers rate us as:	
<ul style="list-style-type: none"><li>• Service - <b>Good</b></li><li>• Staff - <b>Good</b></li></ul>	
75% of our customers rate the hotel as <b>Good</b> or <b>Very Good</b> for Cleanliness.	

Compare the results for the Blues Hotel survey with the Giltspur Hotel survey to decide if the owner is correct.

Make **three** comments to support your decision.

Is the owner correct?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments	<p><u>Customer satisfaction</u> going down at Blues</p> <p><u>Service</u> Blues 3.35 = satisfactory Giltspur is good</p> <p><u>Staff</u> Blues 3.4 = satisfactory Giltspur is good</p>	

(3 marks)

**End of assessment**

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