

Write your name here

Surname

Other names

**Edexcel**  
**Functional Skills**

Centre Number

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Candidate Number

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# Mathematics

## Level 1



9–13 May 2011

**Time: 1 hour 30 minutes**

Paper Reference

**FSM01/01**

**You must have:**

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, compasses.

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.*
- **Calculators may be used.**

### Information

- The total mark for this paper is 48.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- **Where you see this sign you must show clearly how you get your answers because marks will be awarded for your working out.**



### Advice

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

Turn over ►

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## SECTION A: Floors

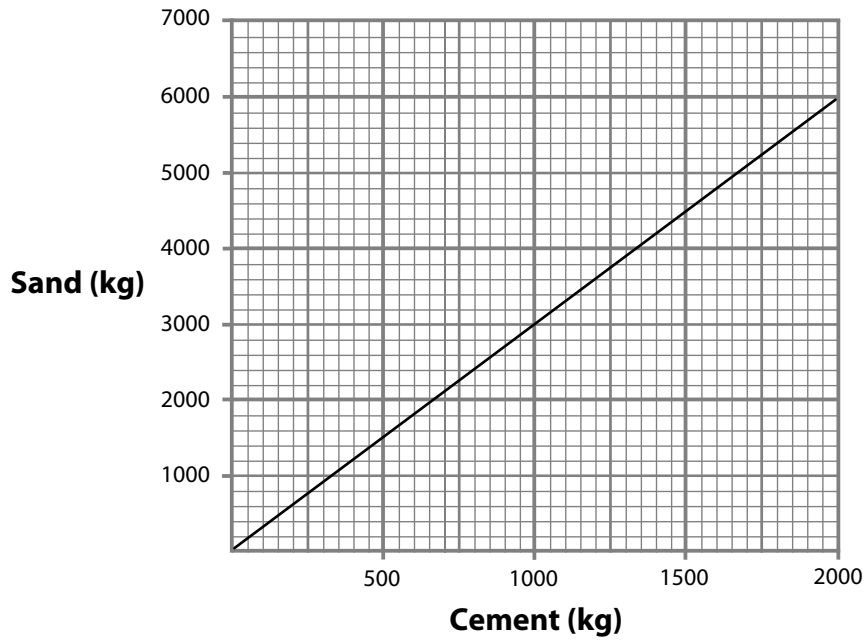
Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Tony needs some new floors in his house.  
He is going to make a concrete floor in the kitchen.

Tony needs 850 kg of cement to make the concrete.

The graph shows the amount of sand he needs for different amounts of cement.



1000 kg = 1 tonne

- (a) How many **tonnes** of sand does Tony need for 850 kg of cement?

(2)

Use the box below to show your answer.



Tony needs 850 kg of cement.  
He buys the cement in 40 kg bags.

(b) How many **bags** of cement does Tony need?

(2)

Use the box below to show clearly how you get your answer.



Tony uses the information below to calculate the drying time for the concrete.

Thickness of concrete	Drying time
Up to 4 cm and including 4 cm	1 week per cm
For each cm more than 4 cm	2 weeks for each extra cm

The thickness of the concrete floor is 7 cm.

(c) Find the **total** drying time for the concrete floor.

(3)

Use the box below to show clearly how you get your answer.



(Total for Question 1 is 7 marks)



- 2 Tony is going to put wooden floorboards on the floors upstairs.  
Each floorboard is 4 m long.  
Tony needs 35 floorboards.

The table shows the costs of three types of floorboard.

Type of floorboard	Cost per metre length
Pine	£10.37
Oak	£12.75
Walnut	£19.55

Tony can pay up to £2000 for the floorboards.

Which floorboards can he buy?

(4)

Use the box below to show clearly how you get your answer.

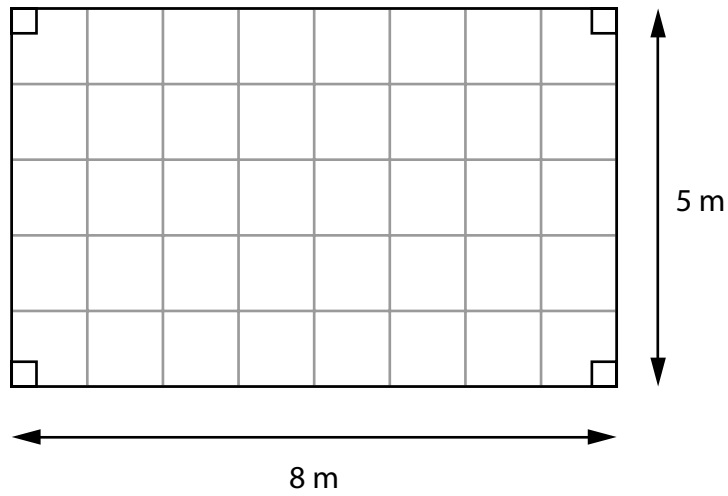


(Total for Question 2 is 4 marks)



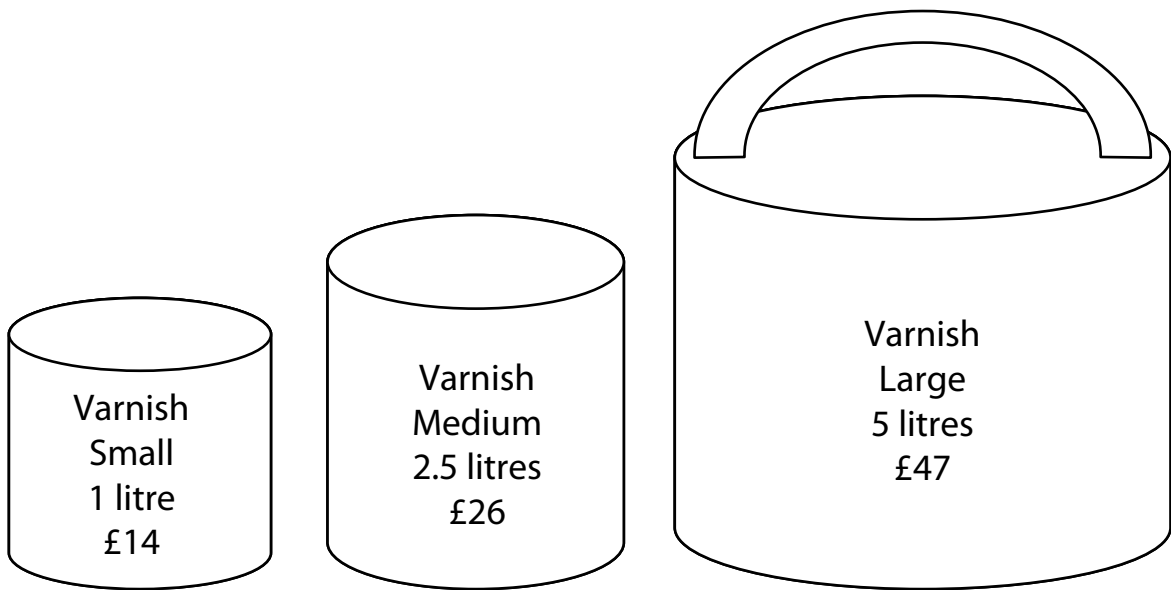
3 Tony is going to put varnish on a floor downstairs.

The diagram shows a plan of the floor.



Key: 1 cm on the plan is 1 m in the room

The varnish is sold in three different tin sizes.



1 litre of varnish covers an area of  $15 \text{ m}^2$ .

Tony needs to cover the floor with varnish 3 times.  
He wants to pay the least amount of money for the varnish.

Find the cheapest way for Tony to buy the varnish. (5)



Use the box to show clearly how you get your answer.



A large, empty rectangular box with rounded corners, intended for the student to show their working out.

**(Total for Question 3 is 5 marks)**



**SECTION B: Free range egg farm**

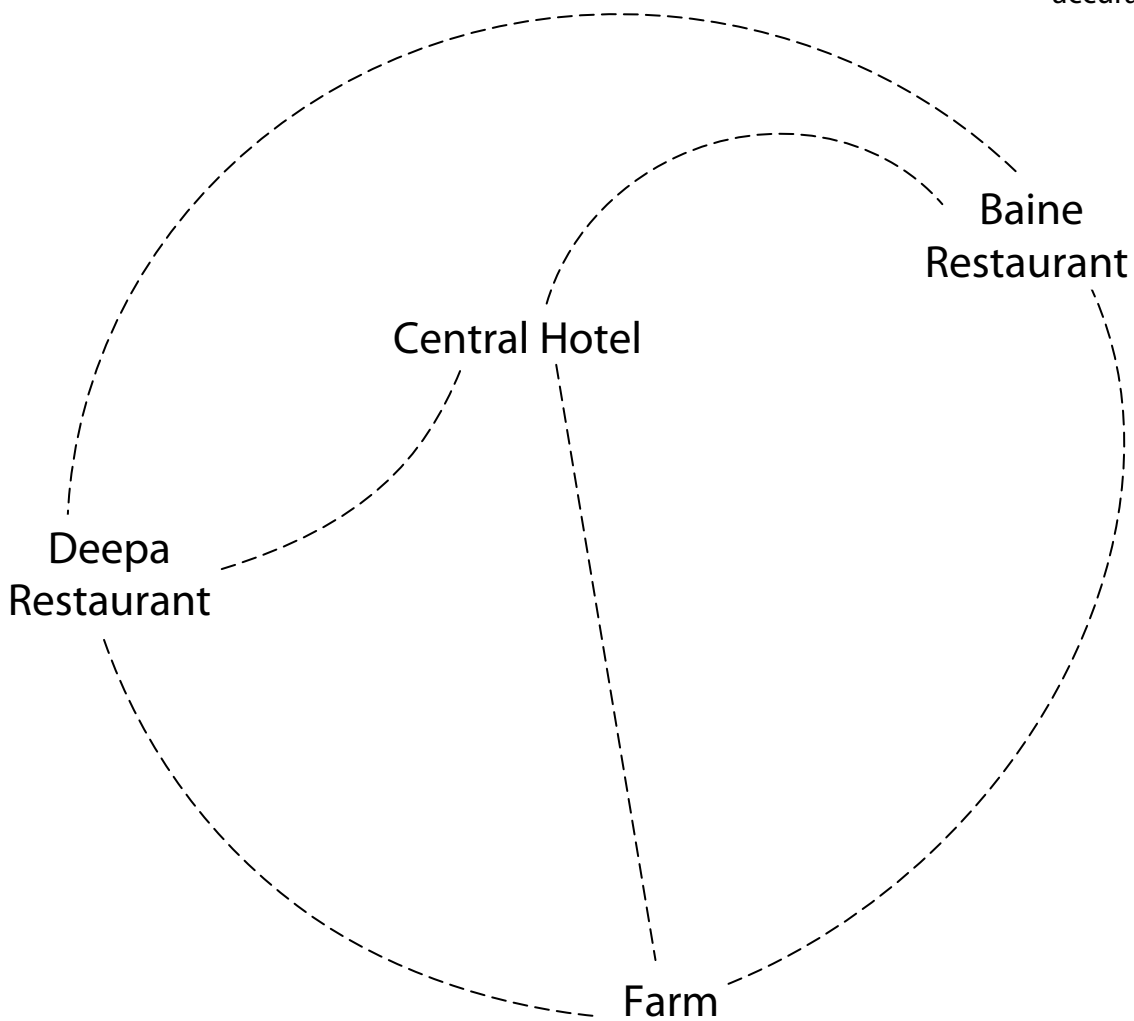
**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 4** Monty has a free range egg farm.  
He makes deliveries of eggs to restaurants and hotels.

Monty will make deliveries to the Central Hotel, the Baine Restaurant and the Deepa Restaurant.

Diagram **NOT**  
accurately drawn





Monty will begin his deliveries from the farm.  
He will return to the farm when he has finished all his deliveries.

The table shows the usual time to travel between the farm, the restaurants and the hotel.

<b>Farm (F)</b>			
10 minutes	<b>Central Hotel (C)</b>		
10 minutes	15 minutes	<b>Baine Restaurant (B)</b>	
15 minutes	10 minutes	20 minutes	<b>Deepa Restaurant (D)</b>

Monty needs to plan the route for his deliveries.

Find a route for Monty that takes the shortest time.

(4)

You may write on the diagram on page 8  
Use the box below to show clearly how you get your answer.



(Total for Question 4 is 4 marks)



- 5 Monty delivers eggs on trays.  
He uses two different types of tray.

The table shows the number of eggs each tray can hold.

Tray type	Number of eggs
A	20
B	50

Monty will deliver 190 eggs to Central Hotel.  
He will completely fill each tray with eggs.

(a) How many of each tray type does he need?

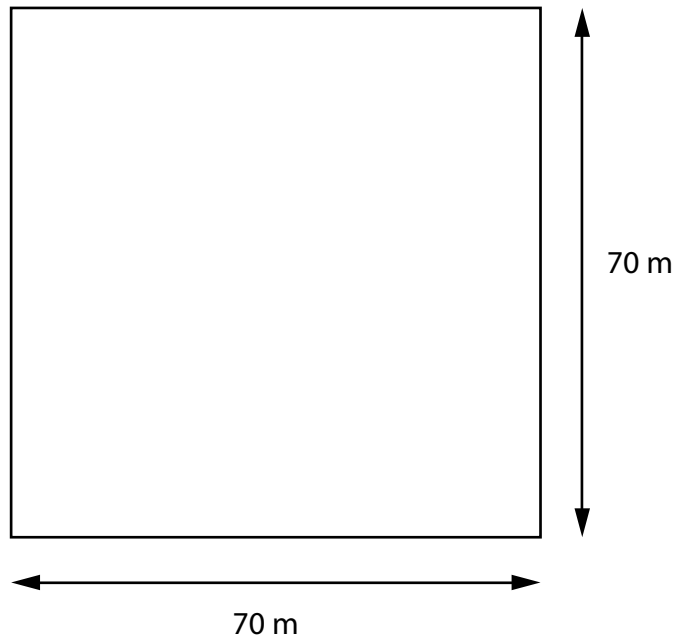
(2)

Use the box below to show your answer clearly.



Monty wants to build a fence around some of his land.  
He will keep some of his chickens on this land.

The fence will form a square 70 m long and 70 m wide.



Monty will put a **large** post at each corner.  
He will put a **small** post every 10 m around the perimeter.

(b) How many **large** posts and how many **small** posts will Monty need?

(3)

Use the box below to show clearly how you get your answer.



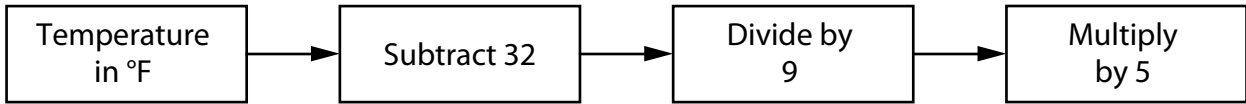
(Total for Question 5 is 5 marks)



- 6 Monty wants to use some of the eggs to hatch into chicks. These eggs need a temperature of  $122^{\circ}\text{F}$ .

Monty needs to change the temperature from  $^{\circ}\text{F}$  to  $^{\circ}\text{C}$ .

He uses this rule to change temperatures from  $^{\circ}\text{F}$  to  $^{\circ}\text{C}$ .



(a) Change  $122^{\circ}\text{F}$  into  $^{\circ}\text{C}$ .

(3)

Use the box below to show clearly how you get your answer.



Monty keeps the eggs in a tray.  
The tray is 633 mm wide.

He wants to put the tray in a space 0.7 m wide.

(b) Is the space wide enough for the tray?

(2)

Use the box below to explain your answer.



**(Total for Question 6 is 5 marks)**

**7** Monty uses 50 000 litres of water on his farm each week.  
He pays 0.1p for each litre of water.

How much does Monty pay for **50 000 litres** of water?

(2)

Use the box below to show clearly how you get your answer.



**(Total for Question 7 is 2 marks)**



P 3 9 4 6 3 A 0 1 3 2 0

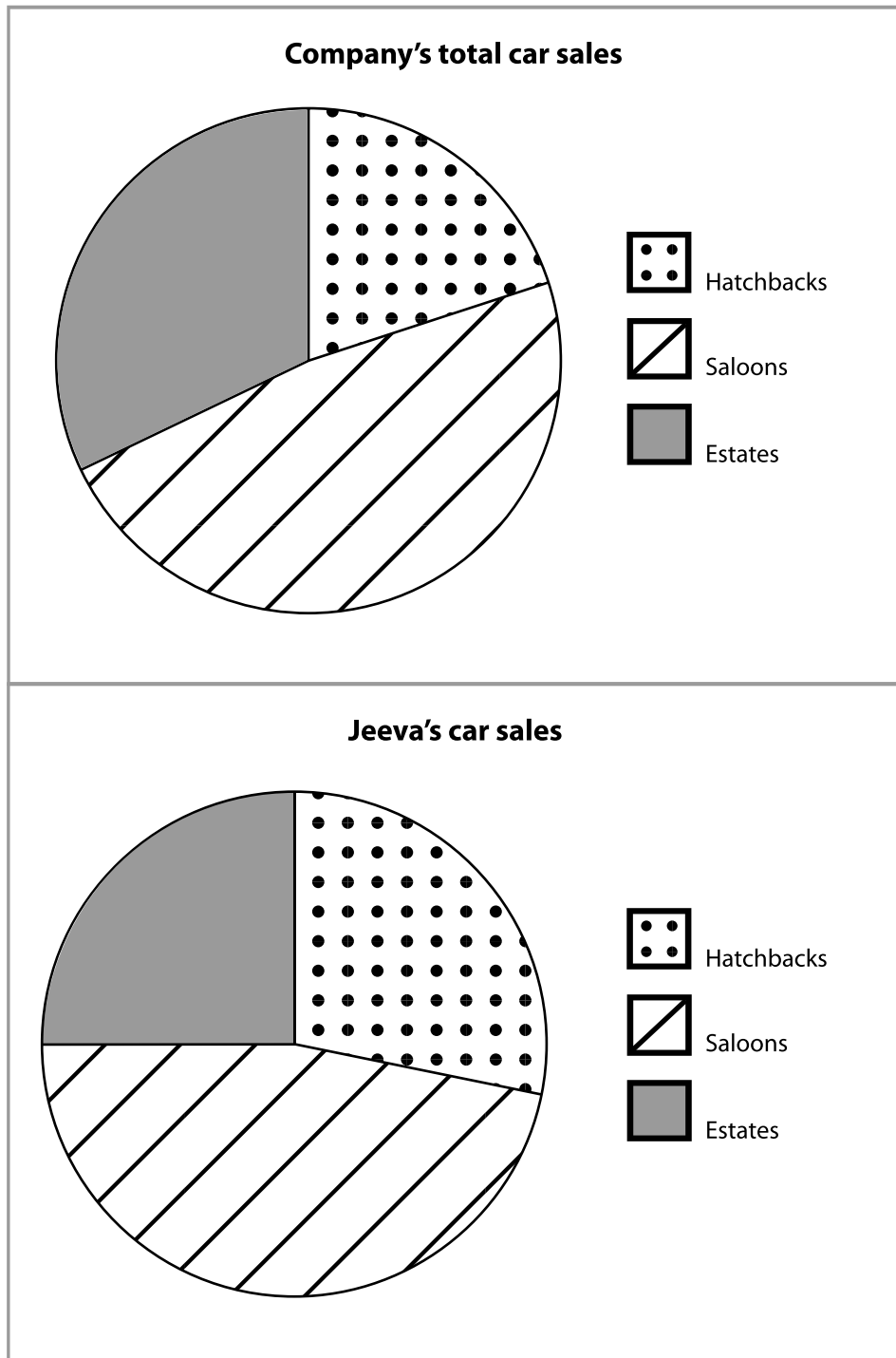
**SECTION C: Car sales**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 8** Jeeva works for a car sales company.  
She sells cars.

Her manager shows her these two pie charts.



(a) Write down **three** statements comparing the Company's total car sales with Jeeva's car sales.

(3)

Write your answers in the box below.

(b) Estimate the percentage of Jeeva's car sales that are estates.

(1)

Write your answer in the box below.

**(Total for Question 8 is 4 marks)**



9 Table 1 shows information about the prices of the cars Jeeva sold last year.

**Table 1**

<b>Sale price of a car</b>	<b>Number sold</b>
Up to £10 000	17
Over £10 000 up to £20 000	12
Over £20 000	16

The manager has two bonus plans for the sales staff.  
Jeeva must choose one of the plans from Table 2.

**Table 2**

<b>Sale price of a car</b>	<b>Bonus plan A</b>	<b>Bonus plan B</b>
Up to £10 000	£100 for each car	£150 for each car
Over £10 000 up to £20 000	£150 for each car	
Over £20 000	£250 for each car	

(a) Which bonus plan is better for Jeeva?

(5)

Use the box below to show clearly your comparisons and your answer.



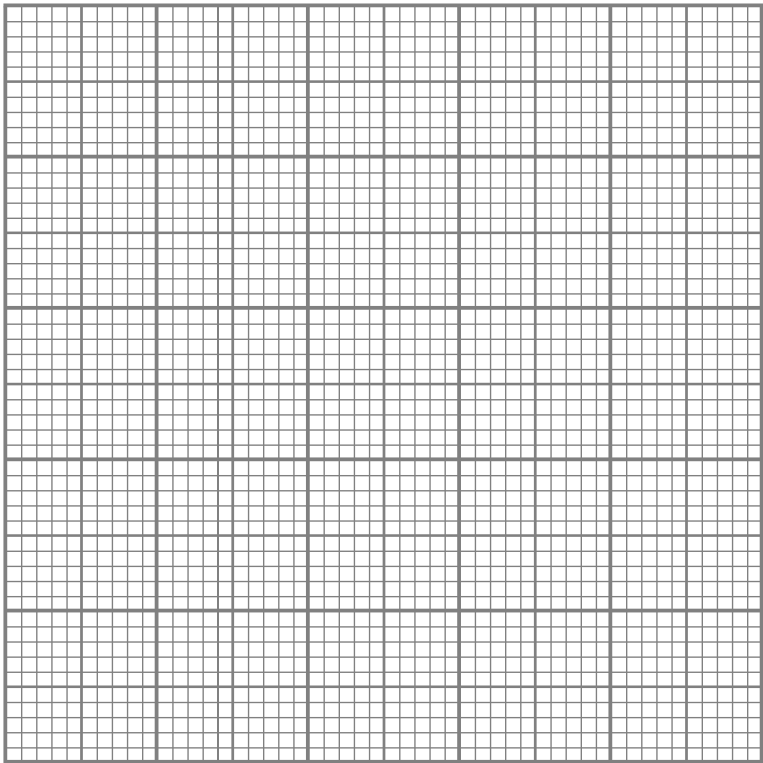




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Jeeva is going to a meeting.  
She needs to display the information about prices of the cars she sold last year.

(b) Draw a chart or graph to display the data from **Table 1** (3)



(Total for Question 9 is 8 marks)



10 The company pays car tax for each of the cars it sells.

The amount of car tax depends on the level of CO2 emissions for that car and the date the car was registered.

**Car tax per year**

CO2 emission (g/kg)	Date registered	
	Before 1 April 2010	On or after 1 April 2010
101 – 110	£20	£0
111 – 120	£30	£0
121 – 130	£90	£0
131 – 140	£100	£110
141 – 150	£115	£125
151 – 165	£145	£155
166 – 175	£170	£250

Jeeva spent a total of £130 buying car tax for the following cars.

Car	CO2 emission (g/kg)	Date registered
A	137	4 <sup>th</sup> April 2009
B	111	4 <sup>th</sup> May 2010

(a) Explain the mistake Jeeva may have made. (3)

Write your explanation in the box below.



Natalie wants to buy a car from Jeeva.  
Natalie wants a car registered before 1 April 2010  
She wants to pay less than £120 for car tax.

(b) What range of CO<sub>2</sub> emissions could the car have?

(1)

Use the box below to write down your answer.



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**(Total for Question 10 is 4 marks)**

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**TOTAL FOR PAPER IS 48 MARKS**



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