

Write your name here

Surname

Other names

Edexcel
Functional Skills

Centre Number

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Candidate Number

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Mathematics

Level 2



14–18 February 2011

Time: 1 hour 30 minutes

Paper Reference

FSM02/01

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: Mobile hairdresser

Answer all questions in this section.

Write your answers in the spaces provided.

1 Pat is a hairdresser.

People pay Pat to do their hair in their own homes.

She works 10 am – 2.30 pm each day from Monday to Friday.

(a) How many hours does she work in one week?

(1)

Use the box below to show your answer.

The normal price for a perm is £37.50

Pat gives a 15% discount to senior citizens.

Flo is a senior citizen.

Pat charges Flo £30

(b) Has Flo been overcharged?

(3)

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



(Total for Question 1 is 4 marks)



- 2 Pat wants to find more clients.
She decides to place an advert in the local paper.
The paper owner uses this formula to calculate the cost of an advert.

$$C = 12 + 1.5W$$

C = The cost of the advert in pounds (£)
W = The number of words in the advert

Pat has a budget of £50

Can she afford an advert with 20 words?

(3)

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



Large empty rectangular box for writing calculations and the answer.

(Total for Question 2 is 3 marks)



3 The week after the advert appears Pat gets these new clients.

Client	Treatment
Mrs Green	1 perm
Mr Chavez	Cuts for 2 children
Miss Patel	1 wash and blow dry
Ms Smith	1 colouring

The table below shows the time for each treatment.

Treatment	Time
Cut	20 minutes
Wash and blow dry	45 minutes
Colouring	$1\frac{1}{2}$ hours
Perm	2 hours

Pat allows 15 minutes to drive from one client to another.
She works between 10 am and 2.30 pm each day from Monday to Friday.

Pat has already booked some clients in for next week.

Fill in the diary opposite to show how Pat can fit in the 4 new clients.

(4)



Monday

10 am - 11.30 am Freda Colouring

11.45 am - 12.30 pm Ms Cardoso Wash and blow dry

Tuesday

1 pm - 2.30 pm Meg Colouring

2.30 pm Finish

Wednesday

10 am - 1 pm Katy's wedding (bride & bridesmaids)

Thursday

12 pm - 2 pm Mrs Brown Perm

Friday

10.15 am - 12.15 pm Mary Perm

12.30 pm - 1.30 pm Mrs Farr cuts for 3 children

1.45 pm - 2.30 pm Anna Wash and blow dry

2.30 pm Finish

(Total for Question 3 is 4 marks)



H 3 9 3 9 4 A 0 5 2 0

- 4 Pat wants to check how many miles her car does for each gallon of petrol. She writes down her mileage when she fills the tank with petrol.

Mileage reading
8593

Pat uses her car to drive around town. She refills the tank with 22.7 litres of petrol. She writes down the new mileage.

Mileage reading
8763

Her car handbook states that the car uses 1 gallon of petrol for every 39 miles of town driving.

Use 4.54 litres = 1 gallon

Compare the number of miles Pat gets per gallon with the number in the handbook.

(5)

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



Large empty box for calculations and answer.





A large, empty rectangular box with rounded corners, intended for writing an answer.

(Total for Question 4 is 5 marks)



SECTION B: Cycling

Answer all questions in this section.

Write your answers in the spaces provided.

- 5 Alana wants to organise a cycling race on a road.
The cycling club rules state that the road must not be too busy.
Alana must do a traffic survey on the road.
She must count all the traffic that goes past.

The cycling club rules for traffic surveys are

- Do 2 surveys in each hour planned for the race.
- Each survey must last for at least 10 minutes.
- Show the start and finish time of each survey.
- Separate the cars from other vehicles on the survey form.
- All the information must be on 1 survey form.


Alana wants to use the road from 8 am until 11 am for the race.
She needs to plan her survey times and design the survey form.
The form must show the survey times.

Design a traffic survey form for Alana to use.

(4)



Use the box below to show your traffic survey form.



(Total for Question 5 is 4 marks)



- 6 Chris needs a bike for the race.
The table shows bike seat tube lengths for a number of inside leg lengths.

Inside leg (cm)	73.5	76.0	78.5	81.5	84.0	86.5	89.0	91.5	94.0	96.5
Bike seat tube (cm)	47.0	49.5	52.0	54.5	57.0	58.5	61.0	62.5	63.5	64.5

Chris knows that his inside leg length is 34 inches.

Use 1 inch = 2.54 cm

(a) What length of seat tube does Chris need?

(2)

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



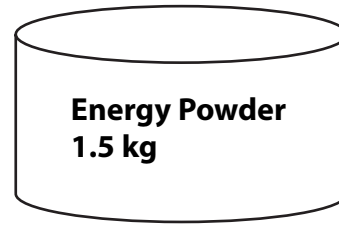
(b) Show how you can check your answer to (a).

(1)

Write your check in the box below.



Chris buys powder to make energy drinks.
The tin holds 1.5 kg.



The instructions on the tin are

**To make 1 litre of drink use 4 – 6 scoops of powder.
Each scoop holds 25 g.**

Chris uses bottles holding 750 ml of energy drink.
He wants to make as many bottles as possible from 1 tin of powder.

(c) How many bottles of energy drink can he make?

(5)

Use the box below to show your answer clearly.



(Total for Question 6 is 8 marks)



7 Chris and his friend Kieran complete the same race each month.

The table below shows their results.

	Chris	Kieran
Jan	24 minutes 21 seconds	24 minutes 16 seconds
Feb	24 minutes 24 seconds	24 minutes 9 seconds
Mar	23 minutes 58 seconds	
Apr	23 minutes 42 seconds	23 minutes 56 seconds
May	23 minutes 50 seconds	23 minutes 53 seconds
Jun	23 minutes 45 seconds	23 minutes 46 seconds

Chris says

'The results show I've been faster than you overall.'

Compare the results for Chris and Kieran to decide if Chris is correct.

(4)

Use the box below to show your calculations and explain your answer.





A large, empty rectangular box with rounded corners, intended for writing an answer.

(Total for Question 7 is 4 marks)



SECTION C: Tea company

Answer all questions in this section.

Write your answers in the spaces provided.

8 Malek is the packaging designer for a tea company.

He designs a small sample box.

The dimensions of the box are
4 cm by 3 cm by 5 cm.

Malek needs a net of the box.

The net is going to be cut out of a rectangular piece
of card.

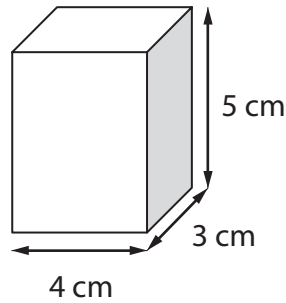


Diagram **NOT**
accurately drawn

What is the length and width of the smallest piece of card that Malek could use
for the net?

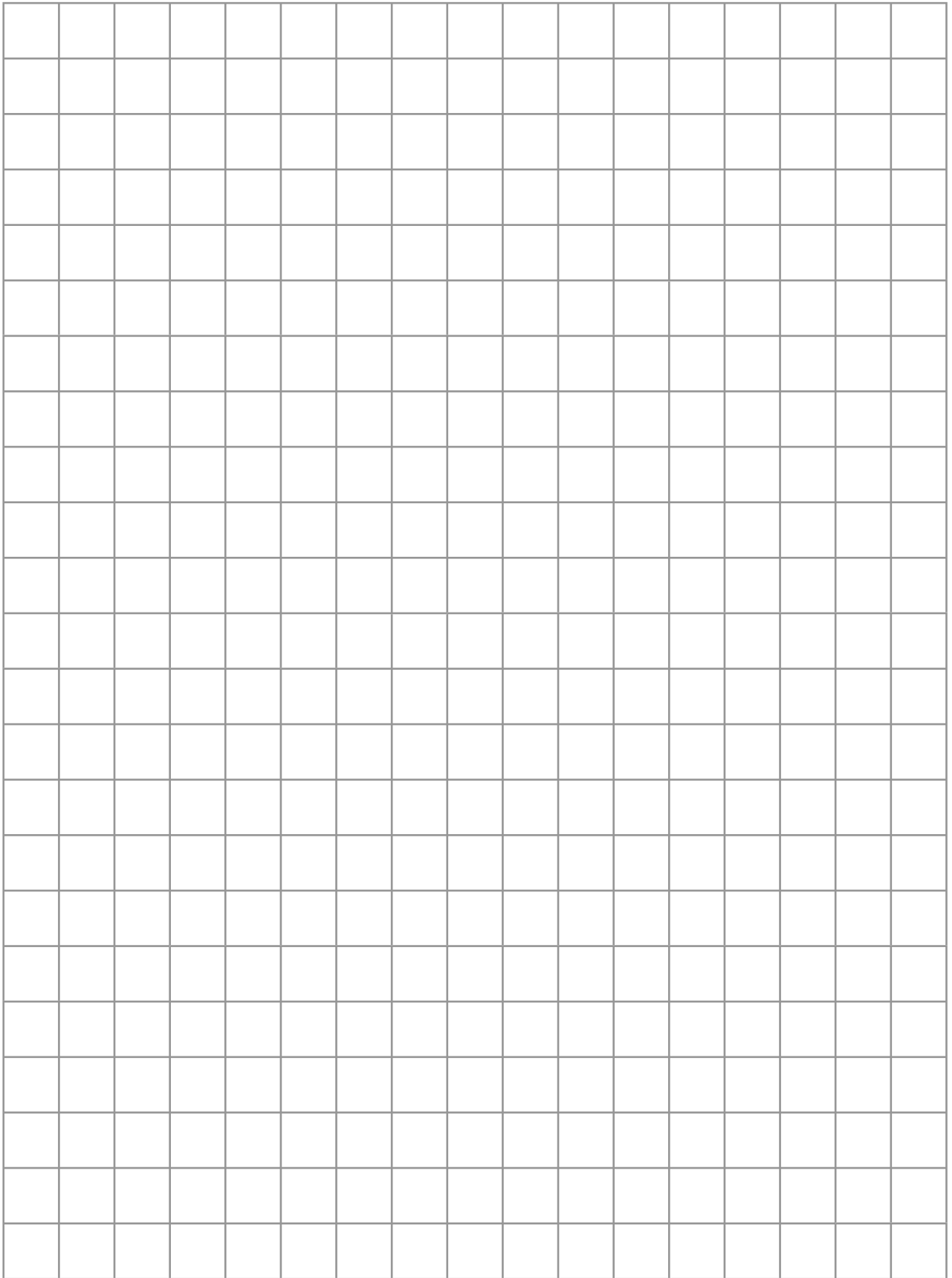
(3)

You may use the box below and the grid on the next page to show your answer and
your net.



A large empty rectangular box for drawing or writing.





Key each square is 1 cm long and 1 cm wide

(Total for Question 8 is 3 marks)



- 9 Freya is the sales manager for the tea company.
The table shows the sales for herbal tea and standard tea for the last 3 years.

Year	2008	2009	2010
Herbal tea	8500 tonnes	10500 tonnes	13000 tonnes
Standard tea	39000 tonnes	33000 tonnes	30000 tonnes

Freya needs to make comparisons between the sales of each type of tea.

(a) Describe the trend in sales of each type of tea.

(2)

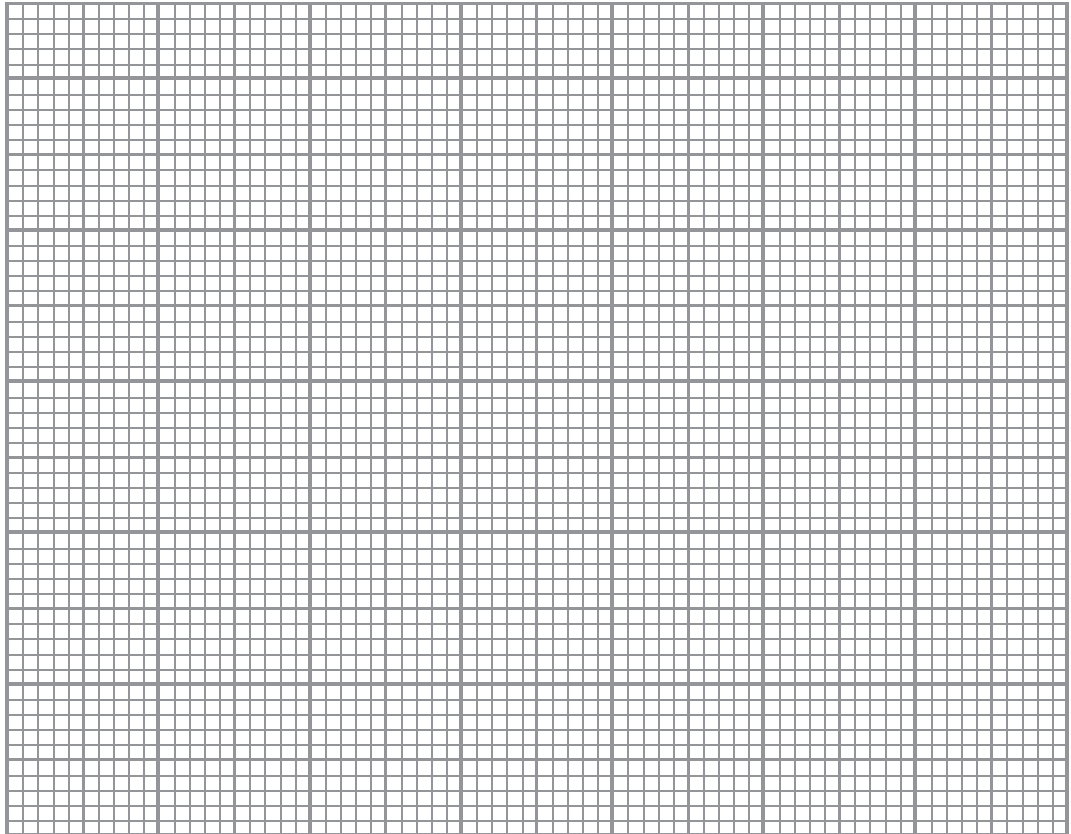
Write your answer in the box below.



Freya must give a presentation about the changes in tea sales.
She wants to display the sales of each type of tea over the last three years.

(b) Draw a graph or chart for Freya to use.

(3)



(Total for Question 9 is 5 marks)



10 Raj is the finance manager for the tea company.

He produces the table below to show the different costs of running the company for the last year.

Type of spend	Amount (£)
Wages	331 560
Premises	10 600
Materials	15 400
Miscellaneous	10 840
Total	368 400

The company owner asks Raj for more information about the proportion spent on wages.

(a) What fraction of the total amount was spent on wages last year?
Raj needs the answer in its simplest form.

(2)

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



Raj has to plan the budget for next year.

He knows that

- the spend on premises will increase by 5%
- the spend on materials will increase by 5%
- the miscellaneous spend will stay the same.

He needs to reduce the total spend by one quarter.

(b) How much should Raj plan to spend on wages next year?

(6)



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



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

(Total for Question 10 is 8 marks)

TOTAL FOR PAPER IS 48 MARKS



H 3 9 3 9 4 A 0 1 9 2 0

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