

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



10–14 October 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

My signature confirms that I will not discuss the content of the test with anyone until the end of the 5 day test window.

Signature: _____

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.
- Sign the declaration.
- 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: Overseas aid

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Britain is sending overseas aid to the island of Mesa.
RAF planes are going to take the aid to Mesa.

Tyler is organising the aid.

Tyler has to plan the weight of the load for each plane.

The planes are going to take 120 aid workers to help in Mesa.

Tyler uses 85 kg as a mean average weight for the 120 aid workers.

- (a) Use this mean average weight to calculate the total weight of the aid workers.

(2)

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



A large empty rectangular box provided for the student to show their calculations and working for question 1(a).



Tyler needs to send 392 food parcels to Mesa.
Each food parcel has a weight of 60 kg.

The first plane needs to take approximately $\frac{1}{3}$ of the food parcels.

(b) Calculate the total weight of food parcels the first plane needs to take.

(3)

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 working out for the calculation.

(Total for Question 1 is 5 marks)



2 The table shows information about the aid that the planes are going to take to Mesa.

Aid items	Number	Weight per item (kg)
clothes parcels	140	36
medical kits	70	80
tents	46	85
bedding	200	75
food parcels	392	60

Tyler needs to plan the loading of the second plane.

The second plane must take some of **every** aid item and some of the aid workers. The aid workers and their kit have a total weight of 4600 kg.

The total weight of the aid items, the aid workers and their kit must be between 18 000 kg and 19 500 kg.

Complete the loading sheet for the second plane.

(6)

Loading sheet: second plane

Aid items	Weight of each item (kg)	Number	Total weight of items (kg)
clothes parcels	36		
medical kits	80		
tents	85		
bedding	75		
food parcels	60		

aid workers and kit	4600
---------------------	------

Total load (kg)	
------------------------	--



You may use the box below for your working.



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

(Total for Question 2 is 6 marks)



3



Tyler wants to work out how long it will take the planes to fly to Mesa.

Tyler knows this formula

$$S = \frac{D}{T}$$

S = average speed in km/h

D = distance in km

T = time in hours

The flying distance to Mesa is 2700 km.

The planes fly at an average speed of 600 km/h.

(a) How long will it take the planes to fly to Mesa?

(3)

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



A large empty rectangular box for writing the solution to the problem.



The planes get to Mesa.

The table shows information about the number of packets of each type of food in a food parcel.

Type of food	Rice	Beans	Maize meal	Sugar	Peanut butter
Number of packets	20	10	20	40	10

An aid worker opens the food parcel and takes out a packet of food.

(b) What is the probability that the aid worker takes out a packet of rice?

(2)

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



(Total for Question 3 is 5 marks)



SECTION B: Selling online

Answer all questions in this section.

Write your answers in the spaces provided.

- 4 Keri manages a small jewellery shop.
She sells jewellery in her shop and online.

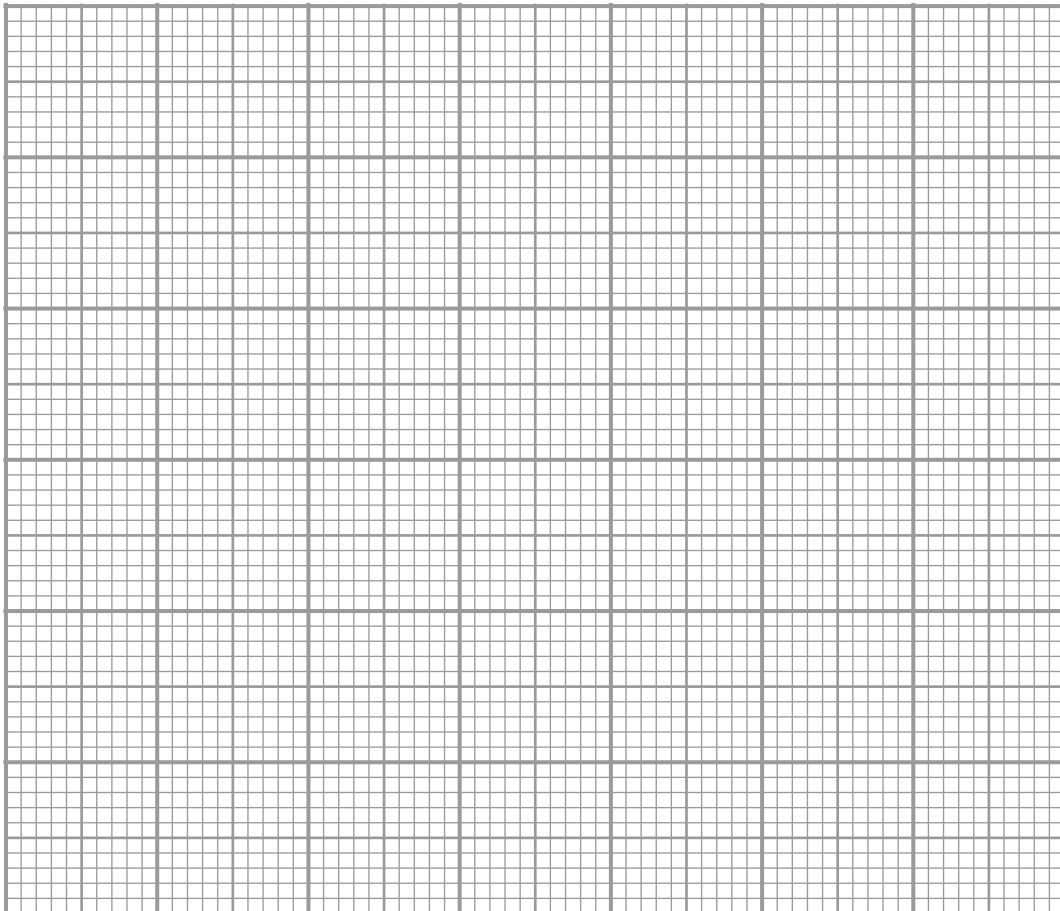
The table shows her sales figures for 2008, 2009 and 2010.

Year	2008	2009	2010
Shop sales (£)	75 000	64 000	70 000
Online sales (£)	5 000	25 000	30 000
Total (£)	80 000	89 000	100 000

Keri has to complete a report for the owner of the shop.
She needs to display the sales figures in her report.

(a) Draw a chart or graph for Keri.

(3)



Keri needs to interpret the sales figures in her report.

(b) Make **two** statements about the sales figures for Keri.

(2)

Write your statements in the box below.

(Total for Question 4 is 5 marks)



5 There are two options for selling items online on the website eTrader.

Option 1 A fixed price

- Advertise the item for a fixed price.
The cost to advertise is 49p.
- Sell the item to the first person offering to pay the fixed price.
- Pay a fee of 12% of the fixed price to eTrader.

Option 2 An auction

- Decide the minimum price you will sell the item for.
- Advertise the item.
The table shows the cost to advertise.
- Sell the item to the person offering the most money.
- Pay a fee of 11% of the selling price to eTrader.

Minimum price	Cost of advert
£0.01-£0.99	Free
£1 - £4.99	£0.10
£5-£14.99	£0.20
£15-£39.99	£0.50
£40-£99.99	£1
£100 or more	£1.30

Jamie uses the website eTrader to sell a watch.

Jamie's friend says,

'Use option 1 and a fixed price of £45.'

Jamie says,

'I am going to use option 2 and set a minimum price of £40.'

Jamie sells the watch for £45.

Did Jamie use the best option?
Show why you think this.

(4)



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 5 is 4 marks)



- 6 Jackson is going to use the eTrader website to sell DVDs.
Each DVD is in a case.

Each case is 19 cm by 14 cm by 1 cm.
Jackson is going to put 4 cases in a box.

He needs a net of the box.

- (a) Work out the dimensions of a box Jackson can use for 4 cases.
Write these dimensions on a diagram. (2)
- (b) Draw a sketch of the net of the box.
Write the dimensions clearly on the net. (2)

Use the space below for your answers.

- (a) Use one of these diagrams to show the dimensions of your box.



Diagrams **NOT**
accurately drawn

- (b) Draw your net here.



Jackson wants to send one DVD by post.
 He puts the DVD in a postal bag with dimensions 16.5 cm × 21 cm × 2 cm.
 The total weight is 170 g.

Jackson finds this information about the cost of posting.

	Weight	First class	Second class
Letter Maximum size 240 mm × 165 mm × 5 mm	0-100g	46p	36p
Large letter Maximum size 353 mm × 250 mm × 25 mm	0-100g	75p	58p
	101-250g	£1.09	92p
	251-500g	£1.46	£1.23
	501-750g	£2.07	£1.76
Packet More than 353 mm long or 250 mm wide or 25 mm thick	0-100g	£1.58	£1.33
	101-250g	£1.96	£1.72
	251-500g	£2.48	£2.16
	501-750g	£3.05	£2.61
	751-1000g	£3.71	£3.15
	1001-1250g	£4.90	N/A

(c) What is the cheapest cost to post the DVD?

(3)

You must use the box below to explain your answer fully.



(Total for Question 6 is 7 marks)



SECTION C: The cookery competition

Answer all questions in this section.

Write your answers in the spaces provided.

7 A food magazine is organising a cookery competition.

Rikka is one of the contestants in the competition.

Rikka has this recipe for making 12 pieces of shortbread.

Shortbread (12 pieces)

4 ounces butter

4 ounces flour

4 ounces rice flour

2 ounces of caster sugar

The scales used in the competition only show metric weights.

1 ounce = 28 grams

Rikka has to make 30 pieces of shortbread.

She has 250 g of butter.

(a) Does Rikka have enough butter to make 30 pieces of shortbread?

Explain why you think this.

(5)

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



The recipe states that the oven must be set at 350 °F.
The oven used in the competition shows temperatures in °C.
Here is a formula to convert °F into °C.

$$C = \frac{5(F-32)}{9}$$

C = temperature in °C
F = temperature in °F

Rikka sets the oven at 200 °C.

(b) Is this the right temperature?
Show why you think this.

(3)

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



(Total for Question 7 is 8 marks)



8 In the semi-final of the competition the contestants have to plan the preparation and cooking of a meal.

Rules

- Your meal must take less than 90 minutes to prepare and cook.
- The competition starts at 1 pm.
- Only one dish may be prepared at a time.
- Main course and pudding may be cooked at the same time.
- One dish may be prepared while another dish is cooking.
- You must choose one main course and one pudding from the list below.

Main course	Preparation time (min)	Cooking time (min)
Steak pie	20	90
Paella	20	25
Lamb curry	15	100
Vegetable lasagne	20	30-40
Roast chicken	15	80

Puddings	Preparation time (min)	Cooking time (min)
Apple cobbler	20	35-40
Treacle pudding	20	180
Chocolate pudding	15	20-25

Rikka needs a plan for making her meal.

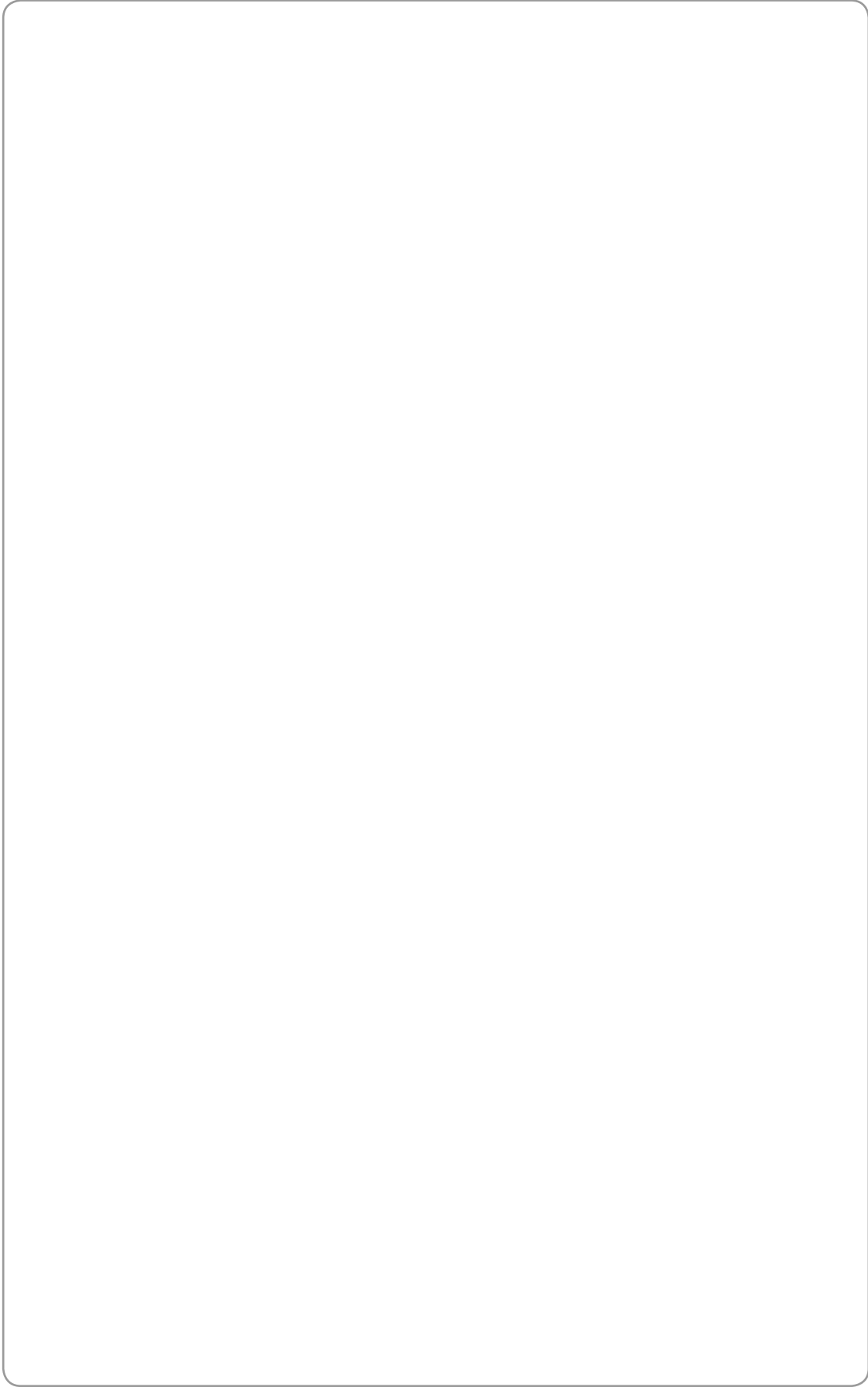
The plan must show the 2 courses she is going to cook, the times she is preparing and cooking these courses.

Make a time plan for Rikka.

(4)



Use the box below to show your time plan.



(Total for Question 8 is 4 marks)



- 9 There are five contestants in the final round of the competition. Each contestant has to cook the meal they planned.



The contestants

- lose 1 point for each minute they are late over the 1 hour 30 minutes
- get up to 10 points for the quality of their food
- get up to 10 points for the presentation of their meal.

The table shows some of the results.

Contestant	Time taken	Time points	Quality	Presentation	Total
Ali	105 minutes	-15	5	8	-2
Harry	108 minutes		4	6	
Rikka	100 minutes		6	7	
Tim	96 minutes		7	8	
Yasmin	90 minutes		8	6	

(a) Complete the table.

(3)



The food magazine wants to publish the results of the competition.
The winner is the contestant with the highest score.

(b) Fill in the results table.

(1)

Cookery competition results table		
Place	Contestant	Score
1		
2		
3		
4		
5		

(Total for Question 9 is 4 marks)

TOTAL FOR PAPER IS 48 MARKS



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