


Write your name here	
Surname	Other names
<b>Edexcel Functional Skills</b>	Centre Number
	Candidate Number
<b>Mathematics</b>	
Level 1	
	
Wednesday 27 January 2010 – Morning <b>Time: 1 hour 15 minutes</b>	Paper Reference <b>FM101/01</b>
<b>You must have:</b> Ruler graduated in centimetres and millimetres, protractor, pen, HB pencil, eraser, calculator.	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.*

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

### Advice

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

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**TASK 1: KITCHEN DESIGN**

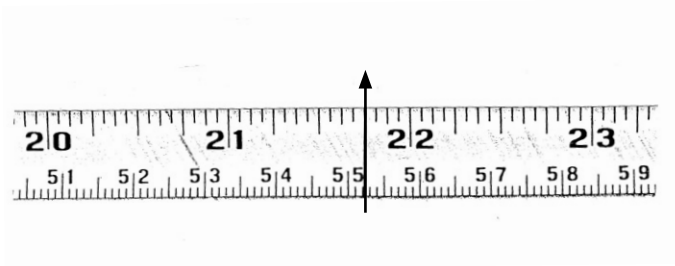
**Answer all questions in this task.**

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



**Where you see this sign you must show clearly how you get your answers as marks may be awarded for your working out.**

- 1** Kevin designs and fits kitchens.  
Here is part of a measuring tape that Kevin uses.



What is the measurement indicated by the arrow on the scale?



..... mm  
..... inches

**(Total for Question 1 = 2 marks)**



2 The width of a kitchen unit is 600 mm.

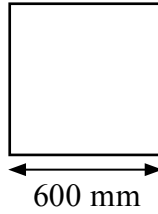


Diagram **NOT**  
accurately drawn

It has been bought to go in a space in a kitchen.  
The width of the space is 0.5 m.

Is the space wide enough for the kitchen unit? Give a reason for your answer.

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(Total for Question 2 = 3 marks)

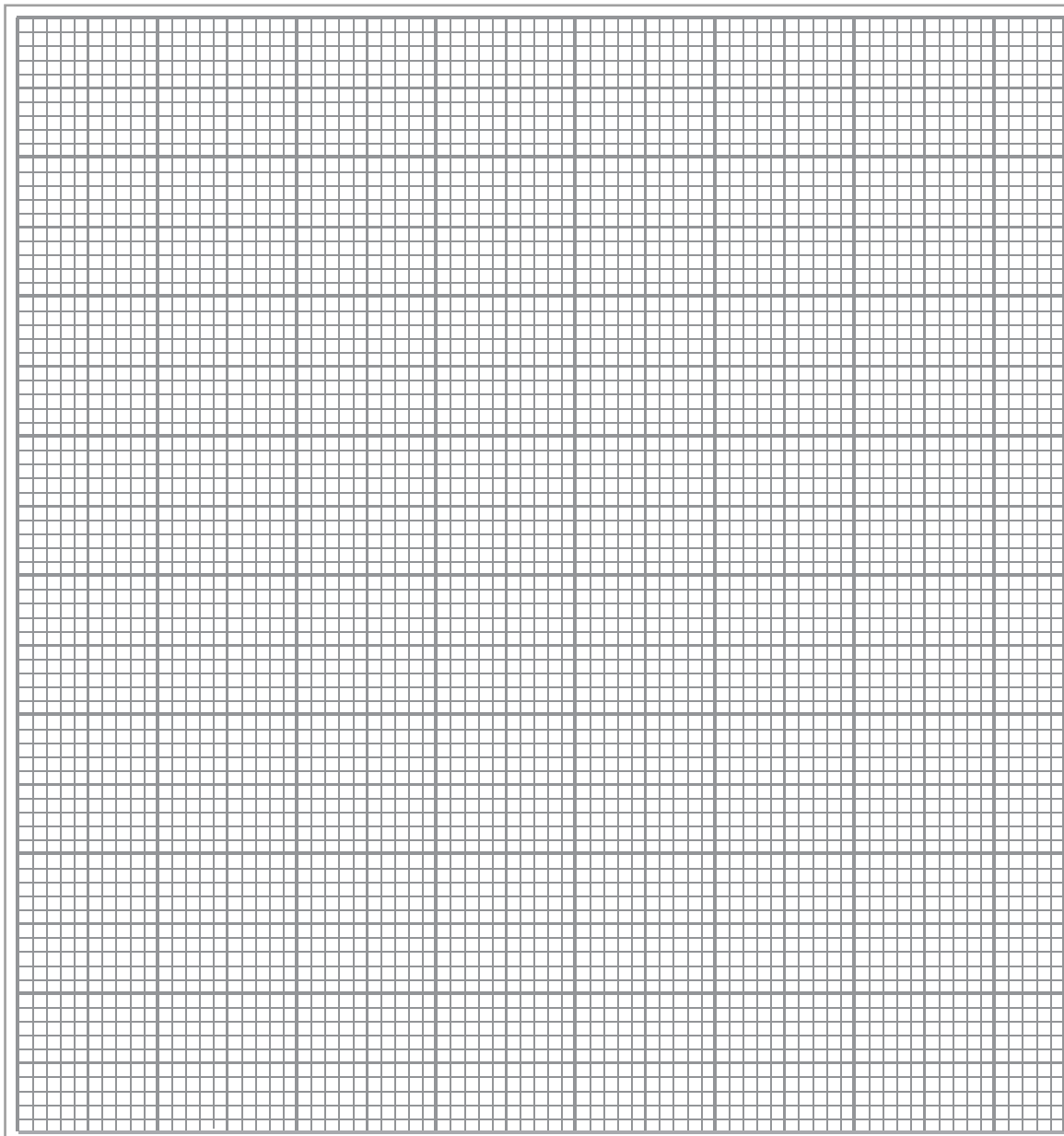


3 This is a record of the money Kevin is paid during January.

Date	Amount	Date	Amount
05/01/10	£1560	19/01/10	£4740
08/01/10	£5640	20/01/10	£1590
11/01/10	£2480	25/01/10	£3410
14/01/10	£3230	28/01/10	£2300
18/01/10	£2160	29/01/10	£3270

Draw a graph or chart to represent this information for January.

You can draw any graphs or charts on the grid below.



(Total for Question 3 = 4 marks)



- 4 Kevin has been asked to paint the floor of a kitchen before fitting kitchen units.  
The width of the floor is 4 m.  
The length of the floor is 3 m.

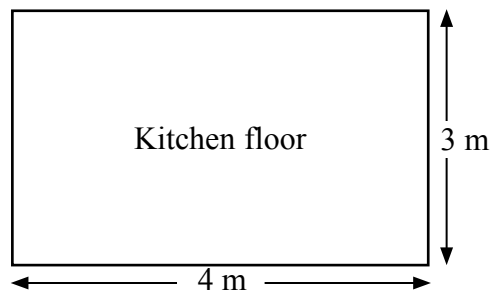


Diagram **NOT** accurately drawn

Polyurethane floor paint is sold in tins containing 1 litre of paint.  
1 litre of the paint covers 7 square metres.  
The floor is going to be painted twice.

How many tins of the floor paint will be needed?



..... tins

(Total for Question 4 = 4 marks)



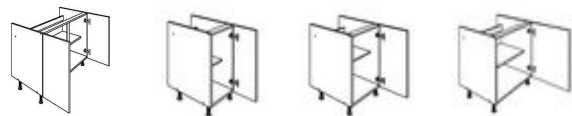
5 Kevin is designing a kitchen.

Here are the details of the kitchen units he is going to choose from.

Each unit is described by its width, and its price.

All the units have a depth (distance from front to back) of 600 mm.

The kitchen is square with a side of 3000 mm.



1000 mm	300 mm	500 mm	600 mm
£67.00	£45.50	£52.00	£53.00

He has been asked to fit as many units as possible along the walls of the kitchen, and has already fitted a 1000 mm unit.

Use the grid opposite to draw in where Kevin should place the units.  
Calculate the total cost of these units.

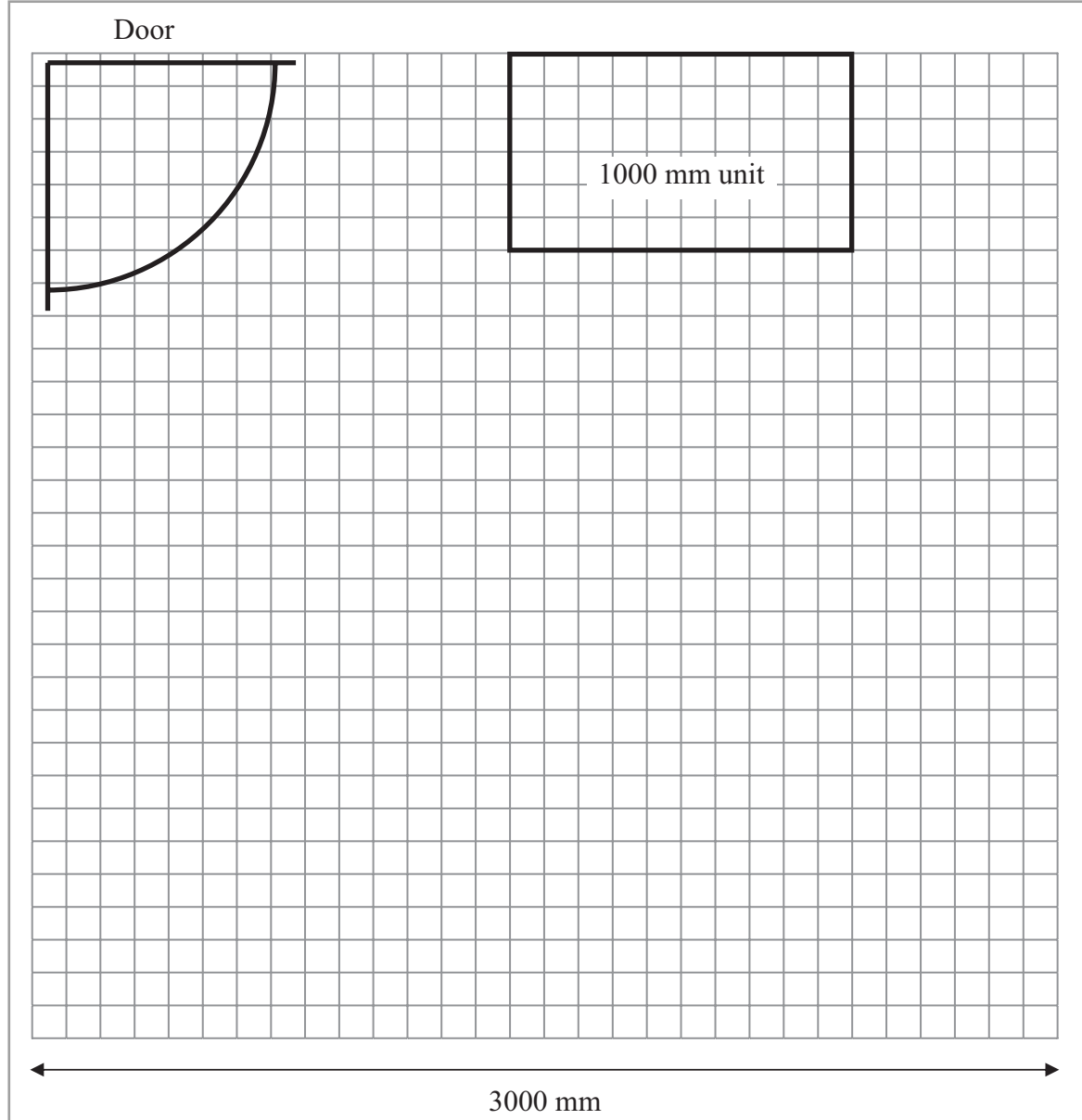
Use the box to show your calculations.



Total cost £.....



Use the grid to plan your kitchen.



(Total for Question 5 = 6 marks)



**TASK 2: DELIVERY VANS**

**Answer all questions in this task.**

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



**Where you see this sign you must show clearly how you get your answers as marks may be awarded for your working out.**

6 Sheila is a delivery driver. She needs to rent a van to make deliveries.

The table below shows the rental costs for vans of different sizes.

	Load	mpg	per hour	per day	per week
Small van	600–900 kg	40–50	£5.99	£41.00	£175
Medium van	900–1200 kg	30–40	£6.99	£51.00	£245
Long van	1200–1800 kg	28–35	£7.99	£66.00	£340
Box van	1600–1800 kg	20–30	£8.99	£81.00	£434

a) For some loads it is difficult to know which van to rent.  
What additional information might help?

(2)

.....

.....

.....

.....

.....





Sheila needs to make the following deliveries.

Day	Load	Estimated time van is needed
Monday	1000 kg	6 hours
Tuesday	1200 kg	8 hours
Wednesday	1500 kg	10 hours
Thursday	1150 kg	12 hours
Friday	1450 kg	10 hours



b) Work out the cheapest way of hiring van(s) so the deliveries can be made.

(6)



(Total for Question 6 = 8 marks)



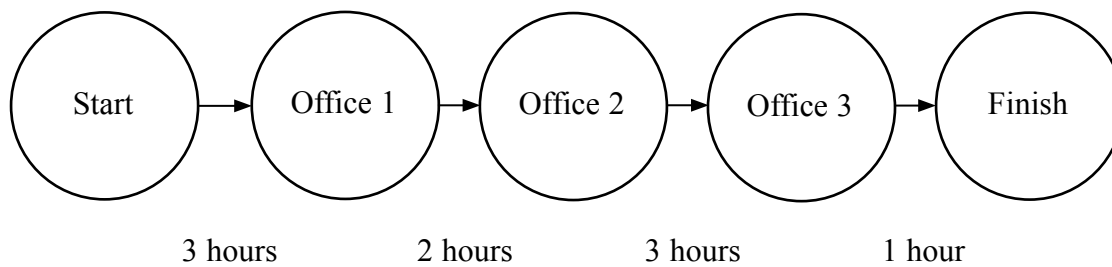
H 3 4 5 5 2 A 0 9 2 0

7 The following is part of the UK regulations for delivery drivers.

- ▶ Maximum daily driving of 9 hours.
- ▶ Maximum of  $4\frac{1}{2}$  hours driving before having a break of at least 45 minutes. The 45 minute break can be split but the first must be a minimum of 15 minutes and the second must be at least 30 minutes.

One day Sheila starts driving at 8 am.  
She needs to visit 3 offices to drop off important packages that day.

The diagram shows the estimated times it takes between offices.



These are the times during which the offices can be visited:

Office 1: 10.30 am to 11.30 am

Office 2: 1.00 pm to 2.00 pm

Office 3: 4.30 pm to 5.00 pm

Sheila does not spend any time at any office. She just drops off the package.

Show how Sheila can make all three visits and keep within the driving regulations.  
You will need to show the times of each visit and any breaks taken.



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



**(Total for Question 7 = 6 marks)**



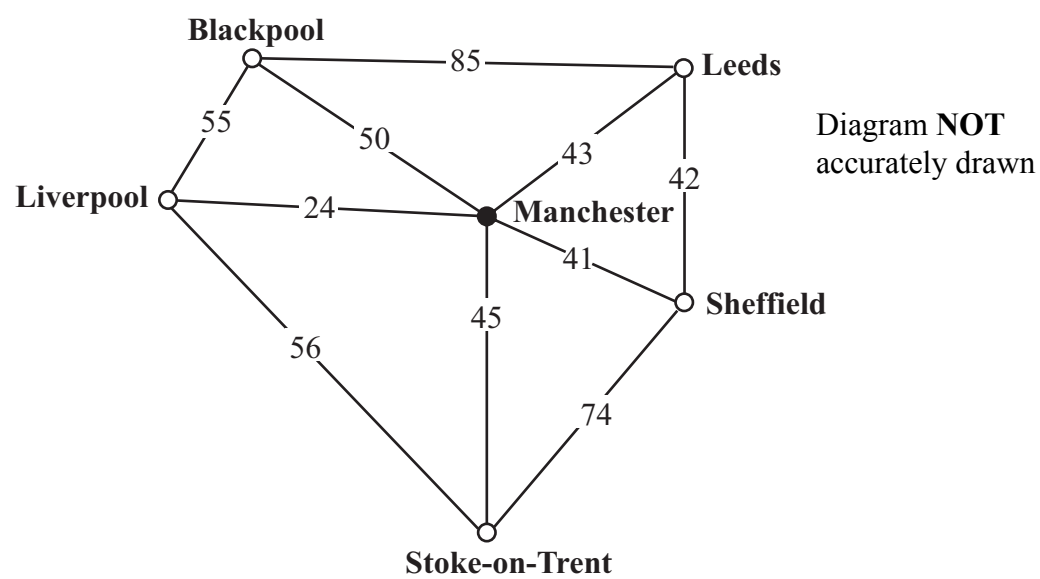
- 8 Sheila is planning to make a number of deliveries during one day. She will start from Manchester, where her office is.

She needs to make a delivery to each of the following places:

Blackpool,  
Leeds,  
Liverpool,  
Sheffield and  
Stoke-on-Trent.

She then has to return to Manchester.

The diagram below shows distances in miles.



Plan Sheila's shortest route.



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



A large empty rectangular box for writing the answer.

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



**TASK 3: FARM MEALS**

**Answer all questions in this task.**

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



**Where you see this sign you must show clearly how you get your answers as marks may be awarded for your working out.**

**9** A customer has placed this order in the farm shop.

- 500 g of beef at £7.80 per kg
- 1 packet of charlotte potatoes at £1.00
- 1 packet of mini carrots at 90p

Calculate the total cost of this order.



**(Total for Question 9 = 4 marks)**



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**TURN OVER FOR QUESTION 10**



H 3 4 5 5 2 A 0 1 5 2 0

15  
*Turn over* ▶

**10** Farm Meals is a company that prepares and supplies healthy frozen meals from farm produce, and sells them as frozen meals. They also advise customers on healthy living.

When a customer wants to know if they are overweight their BMI (Body Mass Index) is calculated.

This formula is used to calculate BMI.

$$\text{BMI} = \text{Weight in pounds} \times 703 \div (\text{height in inches})^2$$

The table below shows what the BMI means.

BMI calculation	Weight description
BMI less than 16.5	Severely underweight
BMI 16.5–18.4	Underweight
BMI 18.5–24.9	Normal
BMI 25.0–30.0	Overweight
BMI greater than 30.0	Obese

A person has a weight of 13 stone, and a height of 5 foot 11 inches.  
1 stone = 14 pounds. 1 foot = 12 inches.

What is the weight description of the person?





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



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



- 11 The meals prepared by Farm Meals use one of each of four different types of ingredient to give a balanced diet.  
The calorie count for a portion of each ingredient is shown below.

1st Ingredient	
Meat & Poultry	Calories
Lamb	170
Pork	150
Beef	180
Chicken	160

2nd Ingredient	
Potatoes	Calories
Boiled potato	105
Mashed potato	128
Chips	143
Baked potato	115



3rd Ingredient	
Vegetable 1	Calories
Peas	20
Carrots	14
Cauliflower	12

4th Ingredient	
Vegetable 2	Calories
Sprouts	28
Cabbage	16
Broccoli	32

A meal has to have a total of 295–305 calories.  
Each meal must contain one portion of each type of ingredient.

Work out the four portions to go into a meal.



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



Four ingredients.....

.....

**(Total for Question 11 = 3 marks)**

**TOTAL FOR PAPER = 48 MARKS**



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