


Write your name here	
Surname	Other names
<b>Edexcel Functional Skills</b>	Centre Number
	Candidate Number
<b>Mathematics</b>	
Level 2	
	
Wednesday 10 March 2010 <b>Time: 1 hour 15 minutes</b>	Paper Reference <b>FM201/01</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: HEALTH AND FITNESS**

**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** John is giving up smoking.

He has some information from the Health and Social Care Information Centre. The information was collected from Secondary School pupils in the UK.

Some of their beliefs about smoking are shown in the table.

**Beliefs about Smoking, by age**

	Age				
	11 years	12 years	13 years	14 years	15 years
	Percentage who thought statement true				
Smoking causes lung cancer	98	98	99	99	98
Smoking makes clothes smell	94	96	98	98	98
Smoking can cause heart disease	95	95	94	91	93
Smoking helps people cope better with life	8	13	15	19	20
Smoking makes people worse at sports	82	82	83	85	85
Smoking helps people relax when nervous	49	57	69	75	79
Smokers stay slimmer than non-smokers	19	22	22	25	27
Smoking gives people self-confidence	14	17	21	24	27



a) Are older pupils more likely than younger pupils to believe smoking gives people self-confidence? Give a reason for your answer.

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

(2)



b) Do twice as many 15 year olds as 11 year olds think smoking helps people cope better with life? Give reasons for your answer.

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

(2)



**(Total for Question 1 = 4 marks)**



2 John knows he is eating and drinking too much. He calculates his average calorie intake to be **3000 calories per day**. This is 300 calories per day more than he needs.

John wants to lose weight healthily. His doctor tells him to reduce his calorie intake by 10% – 20% per day. His doctor also tells him that 3500 calories is equivalent to **1 pound (lb)** of body fat.

John wants to lose 8 pounds of body fat.

Work out how many days this could take him.

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



(Total for Question 2 = 6 marks)



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5

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3 John is changing his job.  
His work days will be from Monday to Friday each week.  
In his new job he will sit at a desk for much of the day, so he will need fewer calories.

John is going to start an exercise programme, so he can use between 2500 and 2800 calories per week.

John chooses three activities for his exercise programme.  
The table shows the number of calories that each activity uses per hour.

Activity	Calories used per hour
Jogging	500
Cycling	400
Swimming	600

On work days John can spend up to 45 minutes on an activity.  
During the weekend he can exercise for as much as 4 hours.

On a work day John can do no more than one activity.  
He will have only one work day when he does not do any of these activities.

On any one day, John can swim for up to 30 minutes.  
On any one day, John can jog for up to 30 minutes.  
He will include all three activities in his weekly exercise programme.

Design a weekly exercise programme for John.

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



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



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

**(Total for Question 3 = 8 marks)**



## TASK 2: PET FOOD

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.

- 4 Tins of dog food are packed into boxes and delivered to supermarkets.



The diameter of each tin is 7.5 cm.  
The height of each tin is 10.5 cm.

Each box is a rectangular cuboid.  
48 tins are packed into each box.

There can be no more than 6 tins along any edge of a box.  
The box used must be as small as possible.





What size of box should be made to contain 48 tins of dog food?

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



A large empty rectangular box for writing the answer and showing the working.

(Total for Question 4 = 4 marks)



H 3 7 6 0 4 A 0 9 2 0

- 5 Sally has a dog called Honey.  
Honey weighs **35 kg**.  
Sally collects information about two types of tinned dog food.

<b><u>Dog food 1</u></b>	
<b><u>Recommended daily use</u></b>	
<b>Dog Weight</b>	
10 kg	½ tin
20 kg	1 tin
30 kg	1¼ tins
40 kg	1½ tins
<b>Tin Weight 1.2 kg</b>	
<b>Price £1.25</b>	

<b><u>Dog food 2</u></b>	
<b><u>Recommended daily use</u></b>	
<b>Dog Weight</b>	
10 kg	¾ tin
20 kg	1¼ tins
30 kg	1½ tins
40 kg	2 tins
<b>Tin Weight 825 g</b>	
<b>Price 90p</b>	



Which dog food is the best value for Sally to buy?

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



A large empty rectangular box provided for the student to show their working out and answer.

(Total for Question 5 = 4 marks)



### TASK 3: DECORATING

Answer all questions in this task.

Write your answers in the spaces provided.



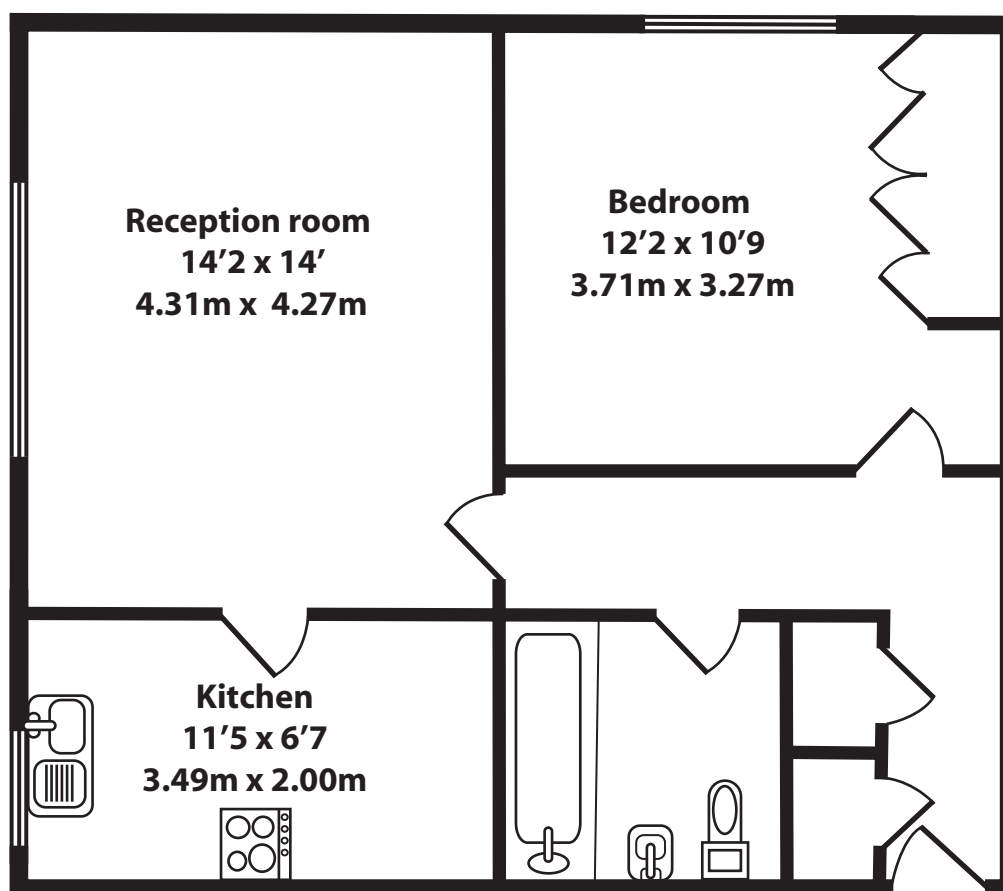
Where you see this sign you must show clearly how you get your answers as marks may be awarded for your working out.

- 6 Alisha has a flat. She is going to wallpaper the walls of her reception room.

The reception room is rectangular.

The length and width of rooms are shown on the floor plan.

#### FLOOR PLAN OF THE FLAT



Alisha uses this formula to work out the number of rolls of wallpaper she needs to decorate the walls of her reception room.

$$N = \frac{PH}{WL}$$

- N** = number of rolls of wallpaper
- P** = perimeter of room (m)
- H** = height of room (m)
- W** = width of wallpaper (m)
- L** = length of wallpaper (m)

The height of the reception room is **2.7 m**.

A roll of wallpaper has a width of **0.5 m** and length of **10 m**.

How many rolls of wallpaper does Alisha need?

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



(Total for Question 6 = 6 marks)



7 Alisha wants two new radiators in her reception room.

To decide which radiators to buy she calculates the British Thermal Units (**BTUs**) value for the reception room.

**BTUs** are a measure of the heat needed in a room.

Alisha's reception room faces north.

The windows are double glazed.

The flat is over 100 years old.

The volume of the reception room is **49.7 m<sup>3</sup>**.

#### Calculating BTUs used for rooms

Reception rooms	Multiply cubic metres by 170
Bedrooms	Multiply cubic metres by 140
For north facing rooms	Add 15% of the BTU value for the room.
For French windows	Add 20% of the BTU value for the room.
For double glazing	Deduct 10% of the BTU value for the room.
For new flats	Deduct 20% of the BTU value for the room.

Alisha needs two radiators with a **total BTU output** closest to the **BTU** value of the reception room.

The height of the reception room is **2.7 m**.

Alisha wants radiators with heights less than two thirds of this height.

#### Tubular Radiators

Model	Output BTUs	Number of Tubes	Height (mm)
060/059	3647	4	600
060/074	4562	5	600
060/089	5473	6	600
170/014	2020	1	1700
170/044	4043	2	1700
170/059	6070	3	1700
200/076	10117	5	2000
200/029	4176	2	2000
200/044	6264	3	2000



Decide which radiators Alisha should buy.

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



A large empty rectangular box provided for the student to show their work and answer the question.

**(Total for Question 7 = 8 marks)**



8 Alisha is going to tile part of a bathroom wall.

The tiles are **5 cm square**.

The tiles will cover a rectangular space with dimensions 1.25 m by 0.75 m.

**Plan of the rectangular space**



The scale of the plan is 1:10

One colour of tile will cover the shaded outer part.

Another two colours of tile will cover the inner part in the ratio 1:2

Colour of tile
Terracotta
Buttermilk
Victorian Blue

Decide the **number of tiles of each colour** Alisha would need for the design.

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





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



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

**TOTAL FOR PAPER = 48 MARKS**



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