Centre No.						Paper Reference								Surname	Initial(s)
Candidate No.						F	M	2	0	1	/	0	1	Signature	

Paper Reference(s)

FM201/01

Examiner's use only

Team Leader's use only

Edexcel Functional Skills

Mathematics

Level 2

Tuesday 27 January 2009 – Morning

Time: 1 hour 15 minutes

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, pen, HB pencil, eraser, calculator.
.

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the tasks and questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
In this question paper there are 4 questions in Task 1, 4 questions in Task 2, and 4 questions in Task 3.
The total mark for this paper is 60.
There are 16 pages in this question paper. Any blank pages are indicated.
Calculators may be used.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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TASK 1: TELEVISION ADVERTISING

Answer all four questions in this task.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. Sally collects information about television channels and television adverts.

The table below shows annual viewing percentages from 2000 to 2007

Annual viewing percentages 2000–2007

Year	CHANNEL					
	BBC1	**BBC2**	**ITV 1**	**C4**	**Cfive**	**Others**
2000	27.2	10.8	29.3	10.5	5.7	16.6
2001	26.9	11.1	26.7	10.0	5.8	19.6
2002	26.2	11.4	24.1	10.0	6.3	22.1
2003	25.6	11.0	23.7	9.6	6.5	23.6
2004	24.7	10.0	22.8	9.7	6.6	26.2
2005	23.3	9.4	21.5	9.7	6.4	29.6
2006	22.8	8.8	19.6	9.8	5.7	33.3
2007	22.0	8.5	19.2	8.6	5.1	36.5

(a) What is the change in the annual viewing percentage for **BBC1** from **2006** to **2007**?

.....

(1)

(b) What can you say about the **change** in the viewing figures for **Cfive** from **2000** to **2007**?

.....

.....

(2)

(c) Calculate the mean annual viewing percentage for **BBC2** for the 8 years from **2000** to **2007**.

.....

(2) **Q1**

(Total 5 marks)

Leave blank

2. The table below gives some information about the costs of showing an advert on TV.

	Cost of an advert			
	TV Programme			
TV Company	**Daytime**	**Local news**	**Peak time soap**	**Drama**
Carlton	£2844	£7962	£29 575	£15 925
LWT	£2843	£7960	£29 567	£15 921
Granada	£800	£1860	£6907	£3719
Yorkshire	£506	£1417	£5262	£2833

George wants to place **Daytime** adverts with **LWT**.
He has an advertising budget of £10 000

(a) **How many** adverts could George place during **Daytime** shows?

.....
(2)

The table below shows the costs of adverts and estimated number of viewers for Granada.

	TV Programme			
Granada	**Daytime show**	**Local news**	**Peak time soap**	**Drama**
Cost of advert	£800	£1860	£6907	£3719
Estimated number of viewers (millions)	0.2	0.8	3.1	1.8

Jeremy has an advertising budget of £50 000
He wants to show his advert on **Granada**.

(b) What is the **maximum** estimated number of viewers that Jeremy can have his advert shown to?
You must show your working.

..... million viewers
(3)

(Total 5 marks)

Q2

Leave blank

3. This is the formula used to calculate the cost of showing an advert.

Cost of showing an advert = TV programme rating × TV company rating

A TV programme rating is 26
A TV company rating is 270

(a) **Use the formula** to calculate the **cost,** in £, of showing an advert.

£ .....

(1)

The **ratio** of the **cost** of an advert shown on **Granada TV** to the cost of an advert shown on Scottish TV is **3:2**

The cost of an advert shown on **Granada TV** is **£1860**

(b) Work out the cost of this advert on **Scottish TV**.

£ .....

(3) **Q3**

(Total 4 marks)

Leave blank

4. Each TV advert lasts for **30 seconds**.

(a) How many adverts can be shown in **3 minutes**?

.....
(1)

In the UK, the maximum number of **30 second** adverts that can be shown in any one hour is **24**

(b) What is the **total** number of minutes needed for **24** adverts?

..... minutes
(2)

(c) When **24** adverts are shown in an **hour**, how much time, in **minutes**, is there left?

..... minutes
(1)

(d) What is 30 seconds as a fraction of 1 hour?
Give your answer in its simplest form.

.....
(2)

Q4

(Total 6 marks)

Leave blank

TASK 2: CONFERENCE CENTRE

Answer all four questions in this task.

Write your answers in the spaces provided.

You must write down all stages in your working.

5. Tanveer is the assistant manager of a conference centre.
He books events and helps organise these events.
The types of events at the centre are Weddings, Business, and Social.

The table shows the numbers of these events booked each week in the first two months of 2009.

Week beginning	Weddings	Business	Social
5 January	0	4	3
12 January	1	10	4
19 January	0	9	3
26 January	1	13	4
2 February	2	15	6
9 February	3	12	5
16 February	1	9	4
23 February	2	8	6

(a) What is the total number of bookings?

.....
(2)

Tanveer is going to run a competition.
Each of these bookings will get a ticket.
At the end of February one ticket will be selected at random for a prize.

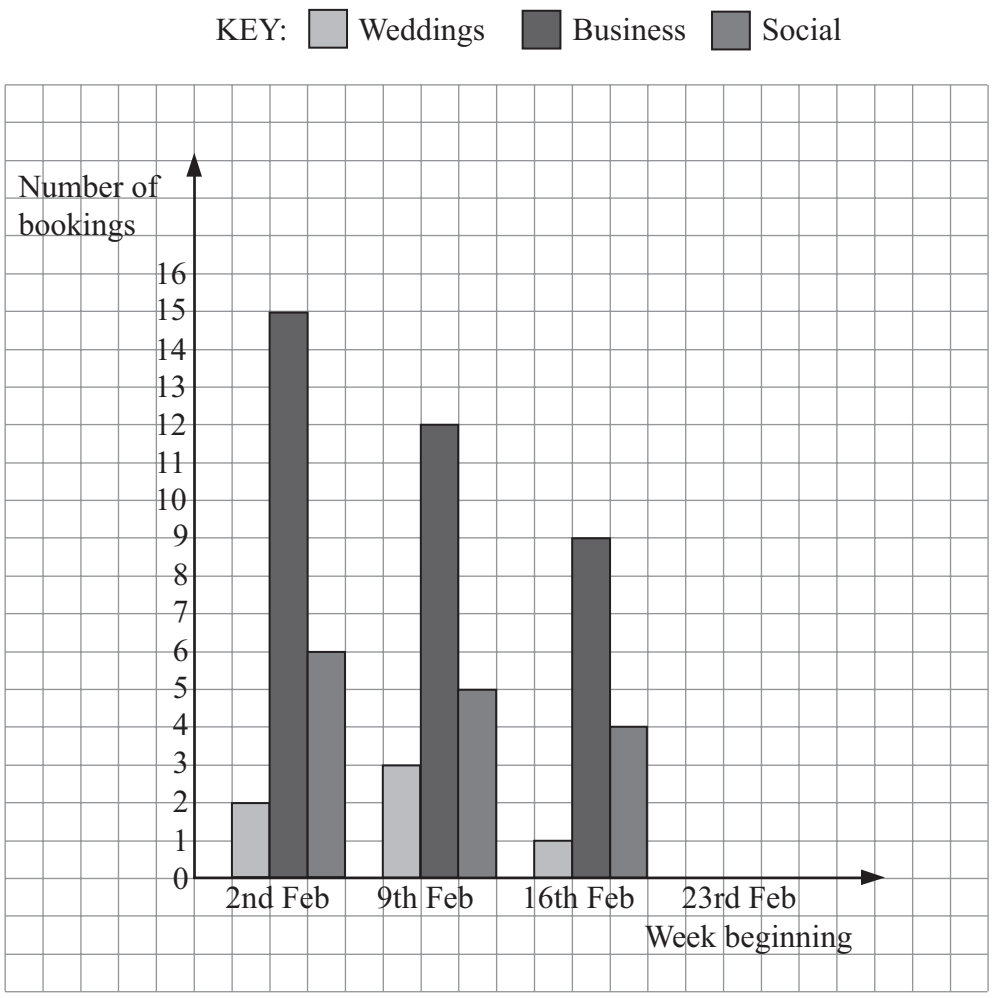
(b) What is the probability that the Wedding booking on 16th February will get the prize?

.....
(2)

Leave blank

Tanveer produced a chart for the number of bookings in February.

FEBRUARY BOOKINGS



(c) Complete the chart for the week beginning 23rd February.

(2)

(d) Compare the number of bookings each week for **Business** events for the 4 weeks of February.
Write down **one** conclusion.

.....

.....

(1)

(Total 7 marks)

Q5

Leave blank

6. **Table 1** shows some information about the maximum number of people that can be booked into each of the rooms in the conference centre, and the floor area of each of these rooms.

Table 1

Room	Maximum number of people	Floor area Square metres
Ellesmere Room	150	180
Bridgewater Room	50	60
Egerton Room	50	60
Manchester Room	35	45
Victoria Room	20	25
Lancaster Room	10	15

On one day, all **six** rooms are used.
Table 2 shows the number of people in each meeting.

Table 2

Meeting	A	B	C	D	E	F
Number of people	30	8	12	35	60	40

Tanveer has to place each of these meetings in a room.

(a) In **Table 3** write down the letter of the meeting that you would place in each room.

Table 3

Room	Meeting
Ellesmere Room	
Bridgewater Room	
Egerton Room	
Manchester Room	
Victoria Room	
Lancaster Room	

(2)

Leave blank

Another rectangular room in the conference centre, the Lowry Room, has a **floor area** of **35** square metres.

(b) (i) The **width** of this room is **5** metres.
What is the **length** of this room?

..... m

(ii) Use **Table 1** opposite to give an estimate for the **maximum** number of people for this room.

.....
(2)

In the Bridgewater Room there are **1.2** square metres of **floor area per guest**?

(c) Which of the rooms has the **greatest** amount of **floor area per guest**?
You must give all stages of your working as reasons for your answer.

.....
(2)

(Total 6 marks)

Q6

Leave blank

7. In one room of the conference centre there are 8 square tables.
Each table can sit **4** people as shown.

The tables can be put together for larger groups.
Here are **2** tables put together for **6** people.

(a) When all **8** tables are put together in a row, how many people can be seated around the tables?

.....

(2)

(b) When all **8** tables are placed separately, how many people can be seated?

.....

(2)

Q7

(Total 4 marks)

8. The cost of booking the Victoria Room each day is **£100** plus **£32** per person.
A company wants to book the Victoria Room for **2 days** and for **15 people**.

What is the **total** cost?

£ .....

Q8

(Total 3 marks)

Leave blank

TASK 3: ENGINEERING

Answer all four questions in this task.

Write your answers in the spaces provided.

You must write down all stages in your working.

9. The table below shows information about some major engineering and manufacturing industries and their **income** during one particular year.

Industry	Income (£millions)	Rank
Electricals	65 000	
Metal production	41 100	
Chemicals	47 500	
Food products	75 000	
Printing	46 000	
Transport	60 800	

The **Rank** column shows the **order** of the incomes of these industries.
The industry with **Rank 1** has the **largest** income.
The industry with **Rank 6** has the **smallest** income.

(a) Complete the **Rank** column in the table.

(2)

The Textiles Industry is another industry.
The Textiles' income was one third of that of the income of Metal production.

(b) Work out the **income** for the Textiles Industry.

.....

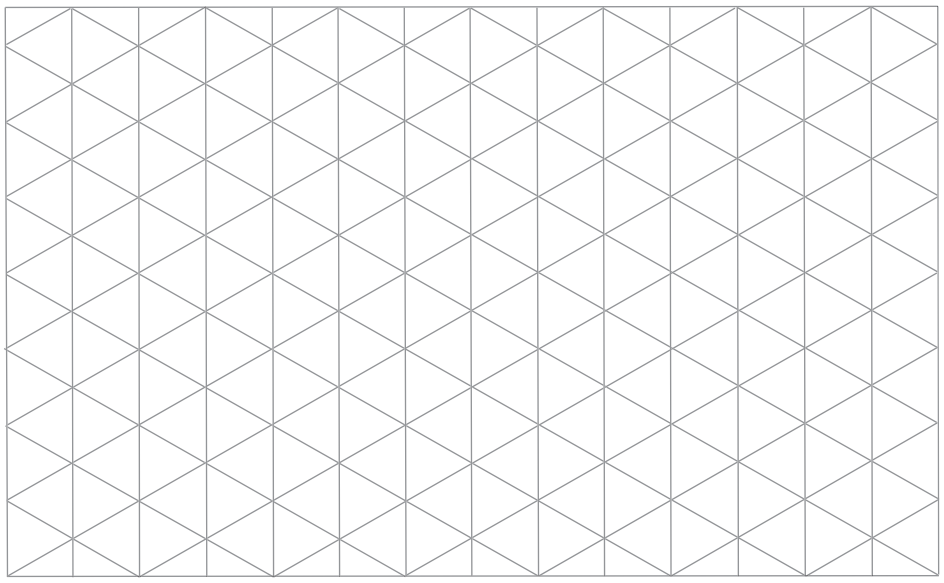
(2) **Q9**

(Total 4 marks)

Leave blank

10. A block of metal is a cuboid with dimensions **2 cm by 2 cm by 4 cm**.

(a) Draw this cuboid on the centimetre **isometric** grid below.



(2)

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A rod of metal in the shape of a cylinder is made from brass.
It has a **length** of **12** cm, and a **diameter** of **3** cm.

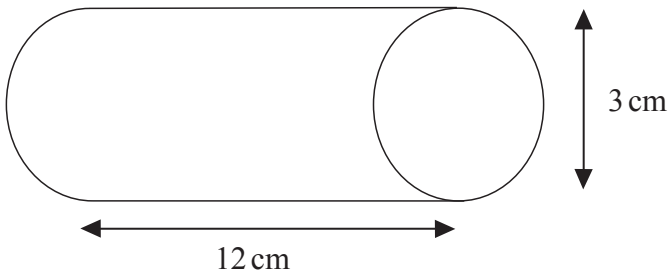


Diagram **NOT** accurately drawn

(b) Find the **volume** of metal in the rod.
Use the formula

Volume of a cylinder = $\pi \times r \times r \times h$

Take the value of π to be 3.14 or use the π button on your calculator.
Give your answer correct to the nearest cm^3.

..... cm^3
(2)

Brass can be stretched by **20%**.

(c) Work out **20%** of **12** cm.

..... cm
(2)

(Total 6 marks)

Q10

Leave blank

11. The table shows some products from a catalogue.

Product			Price per pack
Brass Wood Screws		**Size**: No.8 x 1.25in **Pack Size**: Pack of 10	**£2.99**
Pozi Screws		**Size**: No.6 x 0.5in **Pack Size**: Pack of 50	**£2.99**
Drywall Screws		**Size**: 3.5 x 38mm **Pack Size**: Pack of 100	**£2.99**
Panel Pins		**Size**: 50mm **Pack Size**: 200g	**£2.39**
Clout Nails		**Size**: 40mm **Pack Size**: 2kg	**£9.99**

(a) What is the maximum number of **Drywall Screws** you can buy for **£10**?

.....

(2)

Sheena buys

3 packs of **Panel Pins**
2 packs of **Clout Nails**

Sheena pays with **three £10** notes.

(b) What **change** should she receive?

£ .....

(3)

Q11

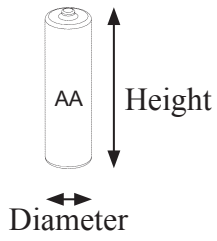
(Total 5 marks)

Leave blank

12. Batteries are made to standard sizes.
The table below shows information about some standard batteries.

Size	Weight (g)	Diameter (mm)	Height (mm)	Voltage
AAA	11.5	10.5	43.3	1.5
AA	22.4	14.3	48.4	1.5
C	74.5	26.1	44.3	1.5

Diagram **NOT** accurately drawn



AA batteries can be bought in packs of 24.
The diagram shows **24** AA batteries placed in a row.

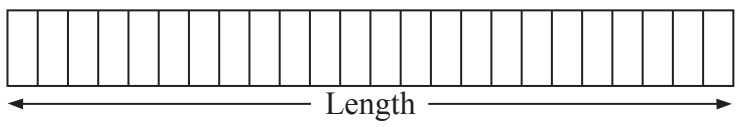


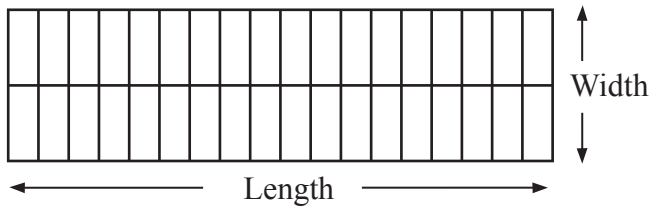
Diagram **NOT** accurately drawn

(a) Work out the **length** of the row.

.....
(2)

AA batteries can also be bought in packs of **36**.
The batteries are arranged in two rows.
The diagram shows **36** AA batteries placed in two rows.

Diagram **NOT** accurately drawn



(b) Work out the **length** and **width**.

Length ..... mm

Width ..... mm
(2)

Leave blank

A watt is a unit of power.

The formula $W = V \times A$

is used to calculate the power produced for an AA sized battery.

For a battery V = **1.5** and A = **3**

(c) Calculate the value of W.

.....

(1) **Q12**

(Total 5 marks)

TOTAL FOR PAPER: 60 MARKS

END