



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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# Functional Skills Certificate

## FUNCTIONAL MATHEMATICS

Level 2

Friday 13 November 2015

Morning

Time allowed: 1 hour 30 minutes

### Materials

For this paper you must have:

- mathematical instruments
- a copy of the data book (examination) (enclosed).
- You may use a calculator.

### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.
- State the units of your answer where appropriate.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- Evidence of checking is specifically assessed in Questions 3(a) and 4(b). These questions are indicated with a †.

### Advice

- In all calculations, show clearly how you work out your answer.



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WMP/Nov15/4368/E5

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Answer **all** questions in the spaces provided.

**1 Athletics**

There is a **data sheet** for Athletics.

**1 (a)** Joe is training these girls for a 4 by 100 m relay team.



Amy



Beth



Carmen



Dita



Eve



Fay



Gabby

He decides to try three possible teams.

He wants

- each girl to be in at least one team
- Amy or Beth to be runner 1 in each team
- Amy, Beth and Fay to be runner 4 once in each team
- Beth and Fay to be in the same team at least once.

Work out three possible teams for Joe to try.

**[4 marks]**



Practise on this grid.

	Runner 1	Runner 2	Runner 3	Runner 4
Team 1				
Team 2				
Team 3				

Put your answer on this grid.

	Runner 1	Runner 2	Runner 3	Runner 4
Team 1				
Team 2				
Team 3				

Turn over ►



1 (b) Kelly is training for the heptathlon.  
Here are her best performances in each event.

Event	Best Performance	Points
100 m hurdles	17.24 seconds	570
200 m	26.61 seconds	745
800 m	2 minutes 42.30 seconds	547
Long jump	5.29 metres	640
High jump	1.53 metres	655
Shot	15.34 metres	884
Javelin	51.37 metres	887
<b>Points total</b>		<b>4928</b>

After training she improves her

- 200 m time by one-quarter of a second
- long jump by 10 centimetres.

She says,

“The points total for my best performances is now over 5000”

Is she correct?

You **must** show your working.

**[6 marks]**

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1 (c) 145 athletes are going to a meeting.  
Steve looks at the cost of hiring buses.

Size of bus	Maximum number of passengers	Cost
Large	40	£150
Medium	20	£95
Small	14	£65

Can he hire enough buses for less than £600?  
You **must** show your working.

[5 marks]

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**2 Steam Trains**

There is a **data sheet** for Steam Trains.

**2 (a)** How many minutes does the 11:45 train from Pickering take to get to Newton Dale?

Circle your answer.

**[1 mark]**

14

20

29

69

Here is the Chan family.



Dad



Mum



Lucy



Grandma

**2 (b)** The Chan family plan to

- catch the 10:40 train from Pickering
- include at least one of the walks
- walk at an average speed of 2.5 miles per hour
- spend at least 1 hour at Grosmont
- arrive back at Pickering before 18:00

Write a plan for their day out.

Include **all** times in your plan.

**[8 marks]**

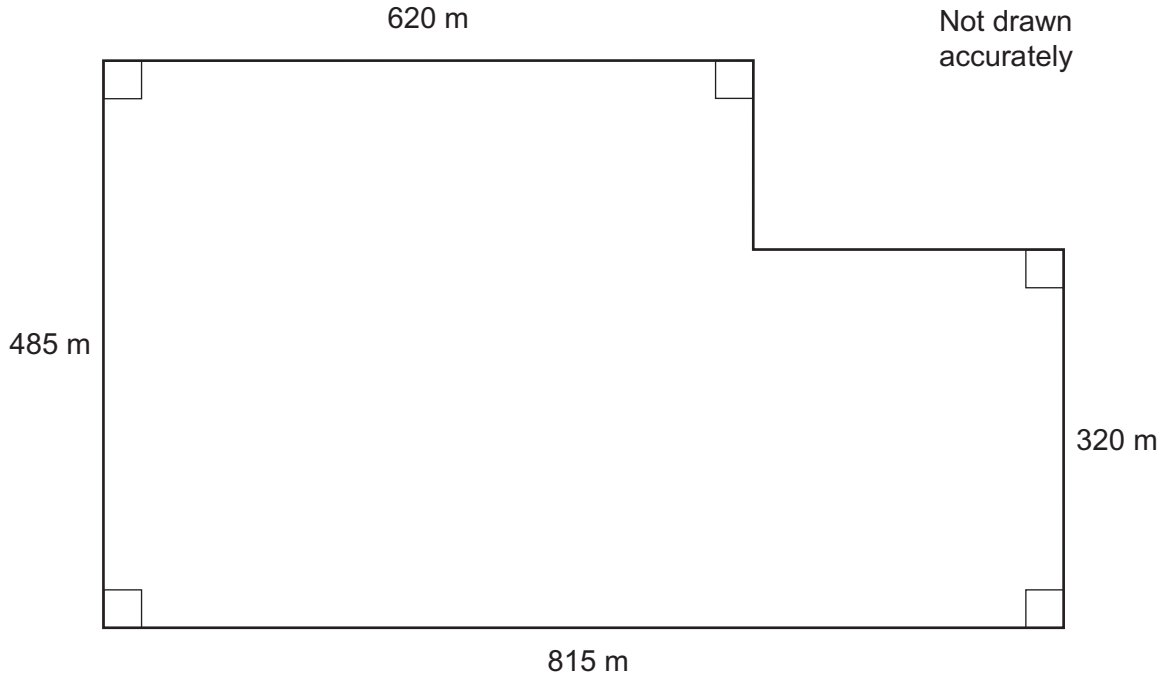




**3 Sheep Farming**

There is a **data sheet** for Sheep Farming.

Rob is a sheep farmer.  
He wants to keep sheep in this field.



**†3 (a)** Rob wants to put a fence around the field.

Which of these total lengths of fencing should he buy?  
Circle your answer.

**[1 mark]**

2405 m

2600 m

2240 m

395 275 m

Check your answer.

To do this round the length of each side of the field to the nearest 50 m

**[1 mark]**

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**3 (b)** Putting a fence around the field costs £2.30 per metre plus VAT at 20%

Work out the cost of putting a fence around the field.

**[3 marks]**

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**3 (c)** Rob says,  
"I can safely keep 500 sheep in the field."

Is he correct?  
You **must** show your working.

**[5 marks]**

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**Turn over ►**



**3 (d)** Rob weighs the wool he gets from 40 ewes.  
Here are the weights.

Weight (kg)	Number of ewes
3.0	4
3.1	8
3.2	16
3.3	9
3.4	2
3.5	1

Show that the mean weight of the wool from the 40 ewes is 3.2 kg

**[2 marks]**

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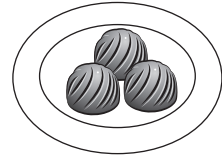


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**Sweets**

Lisa

I make sweets and sell them.



Lisa uses these ingredients.

**To make 60 chocolates**

500 g dark chocolate  
350 g sugar  
200 g cream cheese  
15 ml vanilla

**To make 15 pieces of fudge**

200 g butter  
95 g sugar  
50 g evaporated milk  
250 g chocolate  
20 g chopped nuts



**4 (a)** Lisa wants to make 240 chocolates and 180 pieces of fudge.  
She has 2.5 kg of sugar.

Is this enough?  
You **must** show your working.

**[5 marks]**

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**Turn over for the next question**

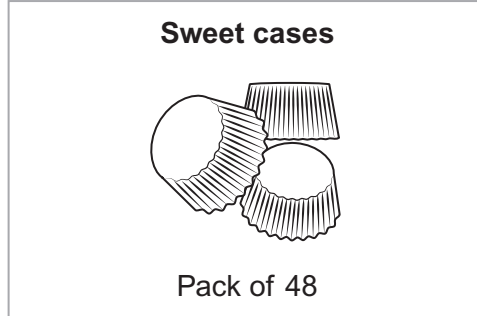
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**†4 (b)** Lisa makes 240 chocolates and 180 pieces of fudge.

She puts each sweet in a case.

She sees this advert.



How many packs does she need?

**[2 marks]**

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Check your answer.  
Show how you have done your check.

**[1 mark]**

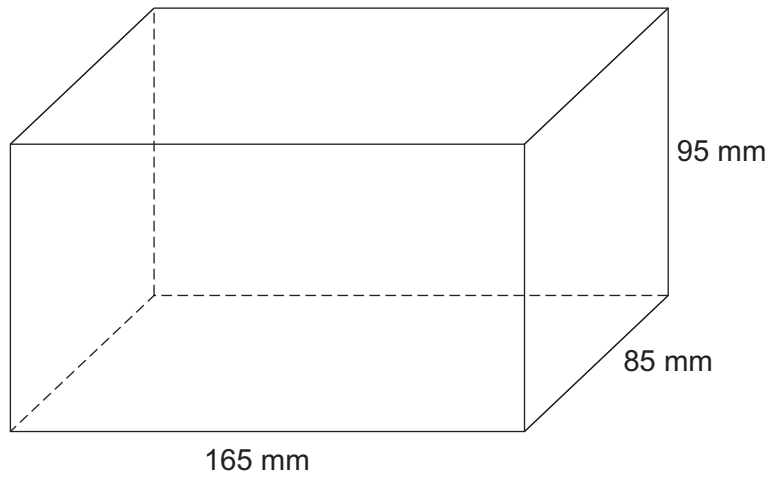
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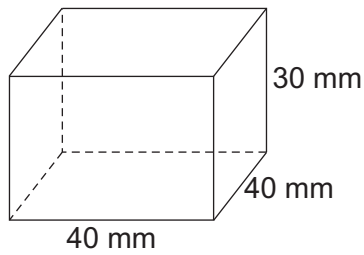
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4 (c) Lisa packs the sweets in layers in boxes.  
Each box is 165 mm long, 85 mm wide and 95 mm high.



Each sweet needs a space that is 40 mm long, 40 mm wide and 30 mm high.



Work out the **maximum** number of sweets she can pack in each box.  
You **must** show your working.

[4 marks]

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