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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

Tuesday 26 February 2019

Morning

Time allowed: 1 hour 30 minutes

### Materials

For this paper you must have:

- a calculator
- mathematical instruments
- a copy of the Data Book (Examination) (enclosed).



### 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.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- 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 2(a) and 4(a). These questions are indicated with a †.

### Advice

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

For Examiner's Use	
Question	Mark
1	
2	
3	
4	
<b>TOTAL</b>	



M A R 1 9 4 3 6 8 0 1

IB/M/Mar19/E6

**4368**

QAN 500/8702/2

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

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**1 Block paving**

There is a **data sheet** for Block paving.

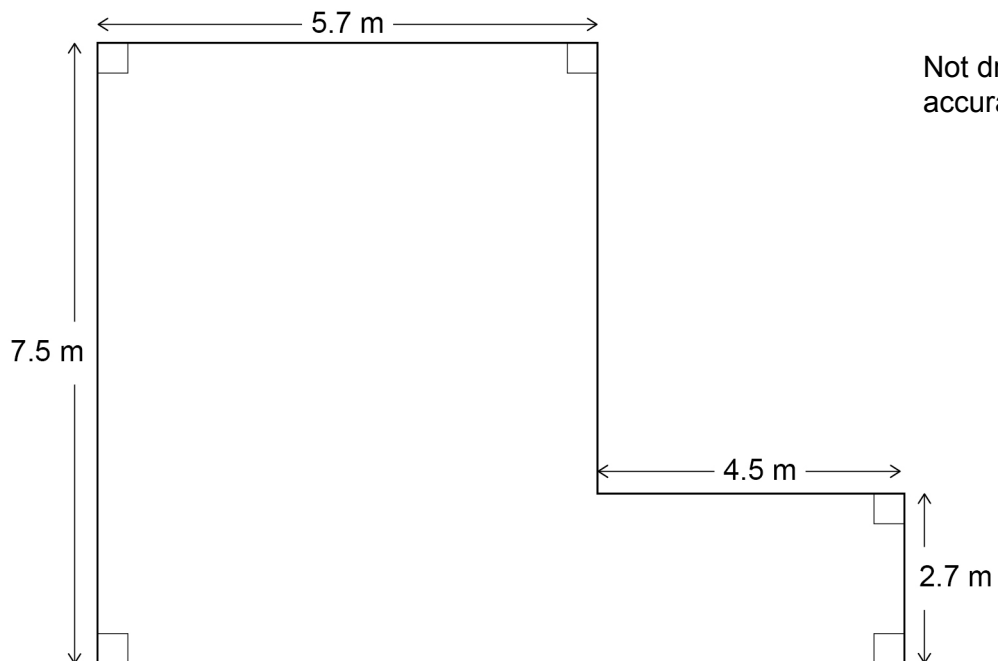
Tom's company builds driveways.



I plan and build block paving.

**Tom**

Here is a sketch of a driveway.



Tom is going to build this driveway using block paving.



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- 1 (a)** The depth of the foundation is 300 millimetres.  
Tom works out the amount of material that he has to remove.  
He is going to put this material into skips.



Each skip can contain 9 cubic metres of material.

Show that he needs 2 skips.

**[4 marks]**

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- 1 (b)** The usual cost of the stone that Tom needs for the foundation is £924  
He gets a discount of 20%  
How much does he pay for the stone?

**[3 marks]**

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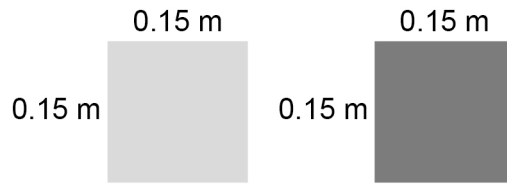
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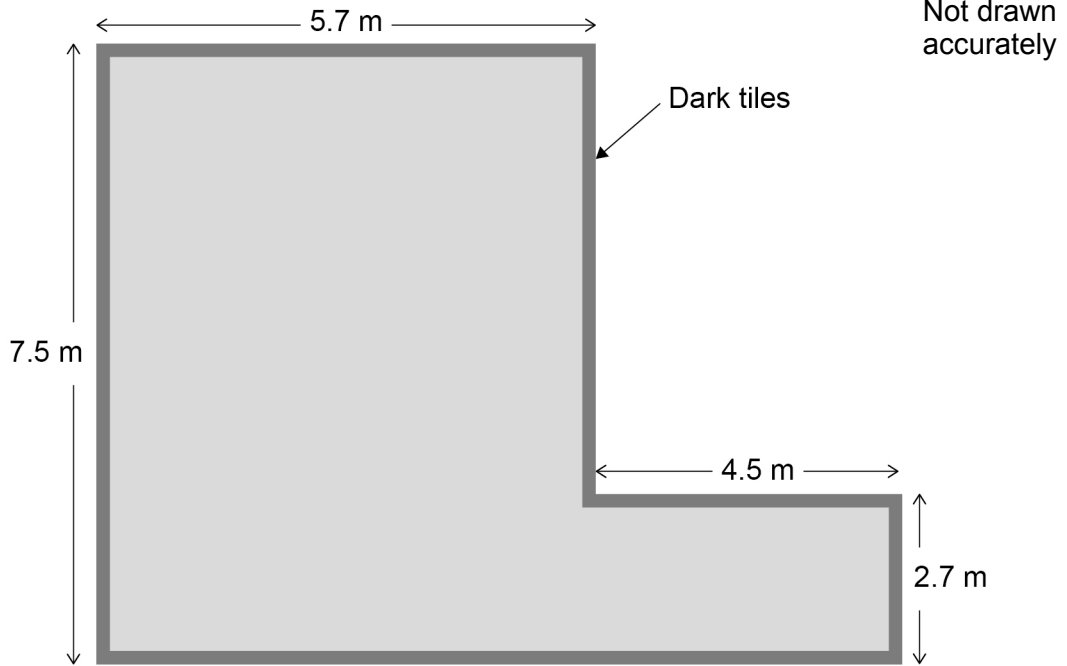


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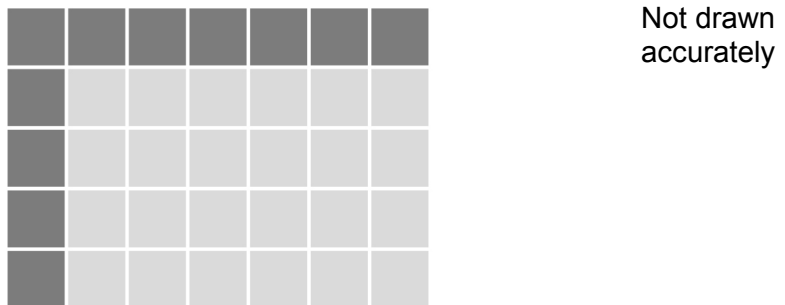
Tom is going to cover the driveway using light tiles and dark tiles.



He first puts dark tiles along the edges of the driveway.



This diagram shows how the tiles are arranged at a corner of the driveway.





- 1 (d)** Tom is designing a pattern of square tiles for part of the driveway.  
He wants to put 24 dark tiles into this grid.

Shade 24 tiles so that the grid has exactly **four** lines of symmetry.

**[3 marks]**

Practise on this grid.



Put your answer on this grid.



2

**Caravan**

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



**Jane and Paul**

Jane and Paul decide to buy this caravan.



**Turn over ►**



†2 (a) A loan company offers these loans.

Amount of loan	Amount of repayment per month				
	For 12 months	For 24 months	For 36 months	For 48 months	For 60 months
£2000	£191	£107	£80	£66	£57
£3000	£286	£161	£119	£99	£86
£4000	£381	£213	£159	£131	£115
£5000	£457	£248	£179	£144	£123
£10 000	£913	£497	£358	£288	£247
£15 000	£1370	£745	£537	£433	£370

Jane and Paul need to borrow £4000 to buy the caravan.

In total, how much **more** will they pay back if they borrow the money over 48 months rather than over 24 months?

[3 marks]

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Check your answer by rounding the monthly repayments to the nearest £10

[1 mark]

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2 (c) Jane makes these notes about the cost of the holiday.

Petrol

We will drive 378 miles in total

Our car travels 42 miles per gallon of petrol

1 gallon = 4.5 litres

One litre of petrol costs £1.20

Caravan park

We will stay 5 nights

We need to pay the fees for

the pitch

the electricity

the awning

We get Caravanners Society discount of £9 per night

Spending money

Between us we will spend £70 per day for 6 days

Jane says,

“The total cost should be less than £600”

Is she correct?

You **must** show your working.

[7 marks]

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**3 Flower shop**

Anaya makes and sells bouquets of flowers in her flower shop.



**Anaya**



**Bouquet of flowers**

Anaya sells standard bouquets and luxury bouquets.

She makes the bouquets using roses, lilies and carnations.

The table shows the number of each type of flower in each type of bouquet.

	Roses	Lilies	Carnations
Standard	6	4	10
Luxury	9	7	4

**3 (a)** What fraction of the flowers in a **standard** bouquet are lilies?

Circle your answer.

**[1 mark]**

$$\frac{1}{4}$$

$$\frac{1}{5}$$

$$\frac{7}{20}$$

$$\frac{11}{40}$$



- 3 (b)** On Monday, Anaya makes 24 bouquets.  
She makes twice as many standard bouquets as luxury bouquets.  
Work out how many of each type of bouquet she makes.

[2 marks]

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- 3 (c)** Anaya sells  
standard bouquets for £22 each  
luxury bouquets for £35 each.

On Tuesday

Anaya makes 14 standard bouquets and 18 luxury bouquets

she sells all the standard bouquets and  $\frac{5}{6}$  of the luxury bouquets.

How much money does she get from selling these bouquets?

[3 marks]

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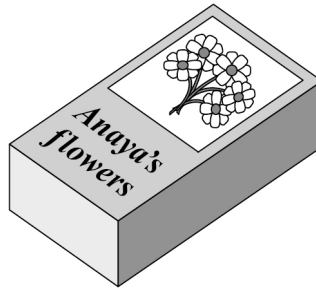
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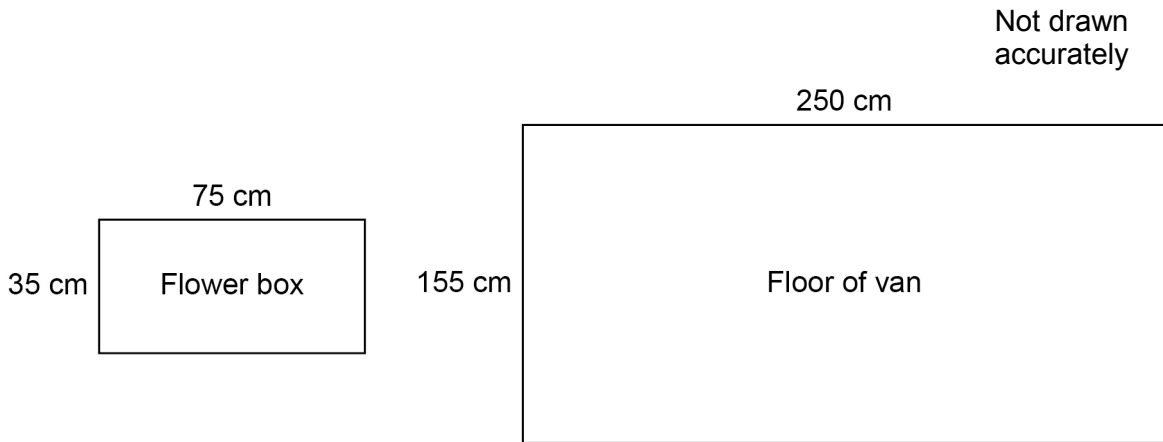
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3 (d) On Saturday, Anaya packs bouquets into 40 boxes for delivery.



The base of each box is a 75 cm by 35 cm rectangle.

The floor of the van is a 250 cm by 155 cm rectangle.



Anaya **cannot** stack more than 3 boxes on top of each other.

Can she fit all 40 boxes in the loading space of her van?

You **must** show your working.

[5 marks]

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**4 Telephone operator**

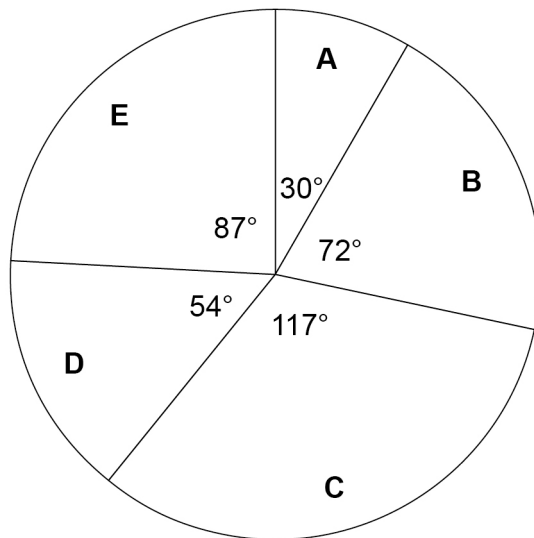
Lizzie is a telephone operator.



Lizzie's manager produces this pie chart.

The pie chart shows information about 120 of Lizzie's calls.

**Times of calls in minutes**

**Key**

- A** Less than 2 minutes
- B** At least 2 and less than 4 minutes
- C** At least 4 and less than 6 minutes
- D** At least 6 and less than 8 minutes
- E** At least 8 minutes





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†4 (a) How many of the 120 calls were **less than** 2 minutes?

[2 marks]

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

[1 mark]

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4 (b) Lizzie has this target for her calls.

At least 75% of the calls should be **less than** 8 minutes.

Has she met her target with these 120 calls?  
You **must** show your working.

[4 marks]

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- 4 (c)** Lizzie is paid the basic rate for the first 37 hours she works each week.  
She is paid the overtime rate for every hour over 37 hours.

Basic rate	£8.64 per hour
Overtime rate	Basic rate + 50%

The table shows the times that she worked one week.

	Start	Finish
Sunday	-	-
Monday	07.30	16.30
Tuesday	09.00	17.00
Wednesday	09.00	17.00
Thursday	16.30	21.30
Friday	09.00	17.00
Saturday	13.30	17.30

Lizzie has a 30-minute break on any day when she is at work for more than 6 hours.

The times in the table include the breaks.

She is **not** paid for these breaks.





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ANSWER IN THE SPACES PROVIDED**









