AQA

SPECIMEN MATERIAL

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

Functional Skills Level 2 MATHEMATICS (8362)

Paper 1 Non-Calculator Paper

Specimen paper

Time allowed: 30 minutes

Materials

For this paper you must have:

- mathematical instruments.

You must **not** 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 20.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

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

20 Functional Skills Maths Level 2 Practice Papers

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MME.

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Section A

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

1 What is $\frac{3}{5}$ as a decimal?

Circle your answer.

[1 mark]

0.06 0.35 0.53 0.6

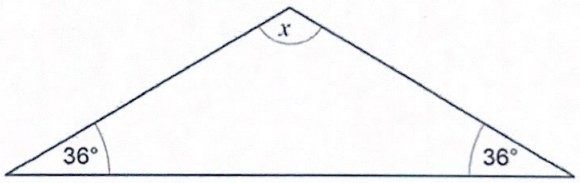
2 Work out 7 – 2.835

[1 mark]

Answer 4.165

3 Work out the size of angle x in this triangle.

[2 marks]



Not drawn accurately

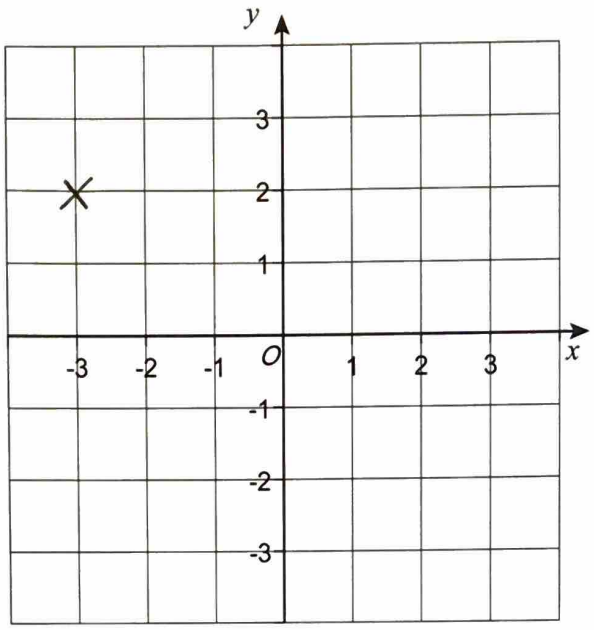
180 − (2 × 36) = 108

Answer 108 °

Do not write outside the box

4 Plot the point (–3, 2) on this grid

[1 mark]



5 Work out $25 - 2 \times 3^2$

[2 marks]

$3^2 = 9$, $2 \times 9 = 18$

$25 - 18 = 7$

Answer 7

Turn over for the next question

7

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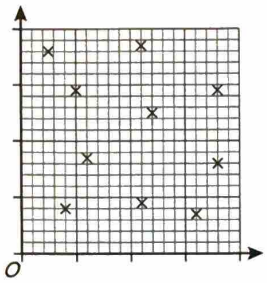
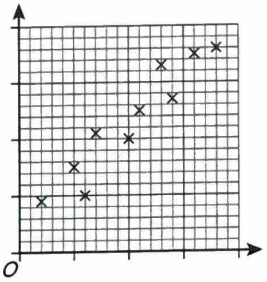
6 **A**, **B**, **C** and **D** are scatter diagrams.

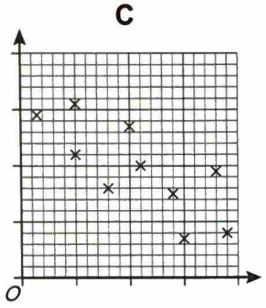
A



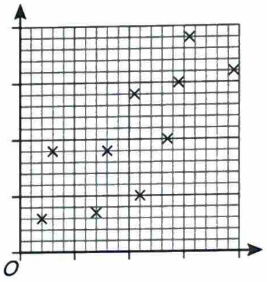
B



C



D



Which diagram shows negative correlation?
Circle your answer below.

[1 mark]

A **B** **C** **D**

1

Do not write outside the box

Turn over for the next question

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

Section B

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

7 **Market stall**

Lisa makes fudge and sells it on a market stall.

7 (a) Lisa makes fudge using these ingredients.

sugar	500	grams
butter	85	grams
evaporated milk	175	grams
milk	150	millilitres
flavouring	20	millilitres

This makes enough fudge for 4 boxes.
Lisa wants to make enough fudge for 48 boxes.
She already has 1.4 kilograms of sugar.
Sugar is sold in 1 kilogram bags.

How many bags of sugar does she need to buy?

[5 marks]

Scale factor = 48 ÷ 4 = 12

amount of sugar needed = 12 × 500g = 6000g

1.4kg = 1400g

6000g - 1400 = 4600g (4.6kg)

She needs to buy 5 bags of sugar

Answer 5

Do not write outside the box

7 (b) Lisa sells the fudge in three flavours: strawberry, vanilla and mint.

She looks at the number of boxes of each flavour she has sold in the last few weeks.

Strawberry	60
Vanilla	140
Mint	40

This week, Lisa makes 48 boxes.

Using the data above, how many boxes of each flavour should she make?
You **must** show your working.

[4 marks]

60 : 140 : 40 = 6 : 14 : 4 = 3 : 7 : 2

⇒ 3 + 7 + 2 = 12 (total parts)

48 ÷ 12 = 4

S: 3 × 4 = 12

V: 7 × 4 = 28

M: 2 × 4 = 8

Strawberry 12

Vanilla 28

Mint 8

Question 7 continues on the next page

9

Do not write outside the box

7 (c) Lisa has to drive 50 miles to the market.

The market starts at 9 am

She needs to arrive at least half an hour before the market starts.

She leaves home at 7.10 am

Lisa says,

"If I drive at an average of 40 miles per hour I will be there in time."

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

[3 marks]

time = distance ÷ speed = 50 ÷ 40 = 1.25 hours

1.25 hours = 1h 15min

07:10 + 1h 15 min = 08:25

She needs to arrive by 08:30 (half an hour before 9am), and she arrives at 08:25 if she leaves at 07:10, travelling at 40 mph.

She is correct

3

END OF QUESTIONS

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Functional Skills Level 2 MATHEMATICS (8362)

Paper 2 Calculator Paper

Specimen paper

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments.

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.
- If your calculator does not have a π button, take the value of π to be 3.142

Advice

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

For Examiner's Use	
Pages	Mark
2-3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20	
TOTAL	

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MME.

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Section A

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

1 A set of numbers is 4 6 6 7 8 8 8 9

Circle the mode.

[1 mark]

5 7 7.5 (8)

2 Work out $\frac{9.386 + 20.904}{2.5}$

Give your answer as a decimal

[1 mark]

9.386 + 20.904 = 30.29

30.29 ÷ 2.5

Answer 12.116

3 The probability of event A happening is 0.15

Work out the probability of event A **not** happening.

[1 mark]

1 − 0.15 = 0.85

Answer 0.85

Do not write outside the box

4 Circle the calculation that increases £260 by 17%

[1 mark]

260 + 0.17 | 260 × 0.17 | 260 + 1.17 | 260 × 1.17

5 Write in digits four hundred and three thousand, seven hundred and twenty.

[1 mark]

403,720 (or 403 720)

Answer 403,720

6 Work out $5\frac{3}{4} - 1\frac{1}{8}$

[1 mark]

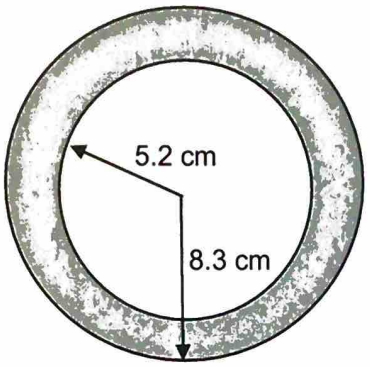
$\frac{23}{4} - \frac{9}{8} = \frac{46}{8} - \frac{9}{8} = \frac{37}{8} = 4\frac{5}{8}$ (= 4.625)

Answer $4\frac{5}{8}$

6

Do not write outside the box

7 A circle of radius 5.2 cm is inside a circle with radius 8.3 cm



Not drawn accurately

$A = \pi r^2$

Work out the shaded area.

[2 marks]

white circle : $A = \pi \times 5.2^2 = 27.04\pi$

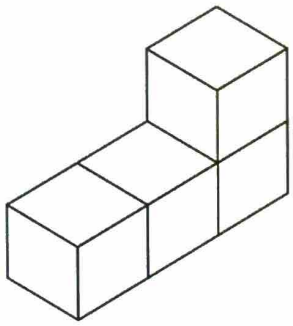
grey circle : $A = \pi \times 8.3^2 = 68.89\pi$

Shaded area = $68.89\pi - 27.04\pi = 41.85\pi$

Answer 131.5 cm^2

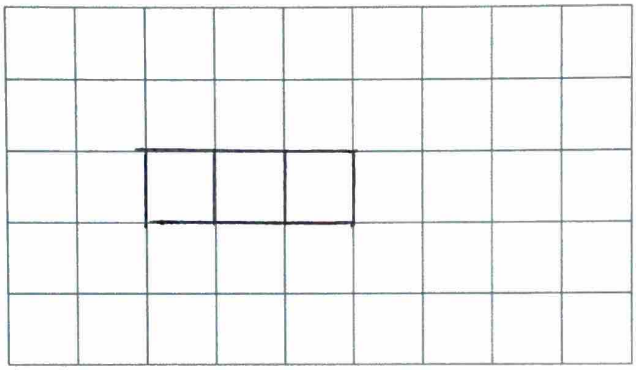
Do not write outside the box

8 Each of the **four** cubes in this L-shape has side length 1 centimetre.



On this centimetre grid draw a plan view of the L-shape.

[1 mark]



9 Work out the percentage decrease from 5200 to 4108

[3 marks]

$$\%\ \text{change} = \left(\frac{\text{change}}{\text{original}}\right) \times 100$$

$$= \left(\frac{5200 - 4108}{5200}\right) \times 100$$

$$= 21$$

Answer 21 %

6

Do not write outside the box

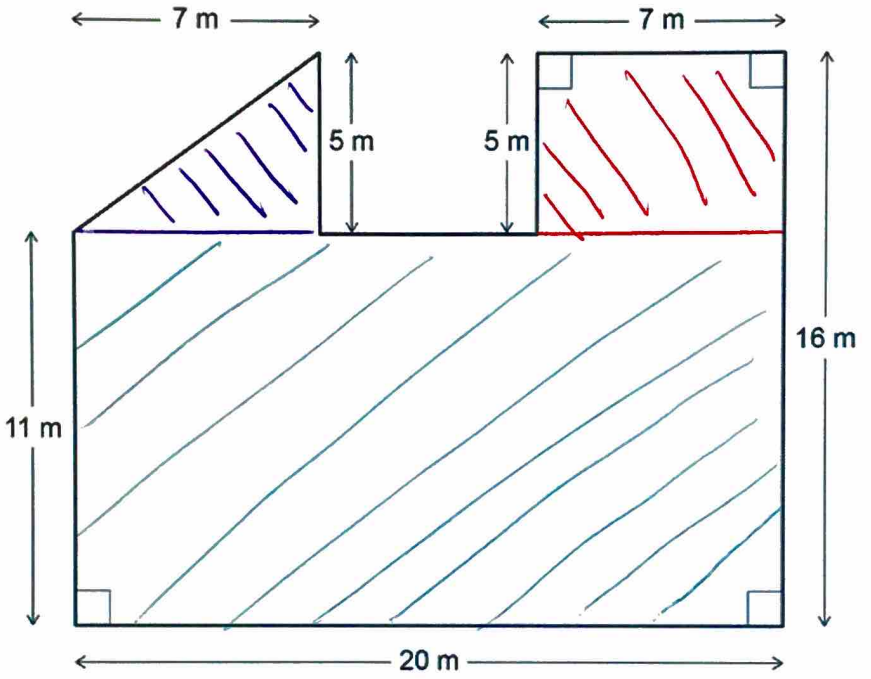
Section B

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

10 **Playground**

Levi works for a company that designs and builds playgrounds.

Here is a sketch of the plan for a new playground.



10 (a) Work out the area of the playground.

[3 marks]

Large rectangle: $20 \times 11 = 220$ m²

Small rectangle: $5 \times 7 = 35$ m²

Triangle: $0.5 \times 7 \times 5 = 17.5$ m²

Total Area = $220 + 35 + 17.5$ m²

$= 272.5$

Answer 272.5 m²

Do not write outside the box

10 (b) The surface of the playground will be covered with rubber chips and resin.

Levi uses 14 kg of rubber chips per square metre

He also uses resin, in the ratio

mass of rubber chips : mass of resin = 5 : 1

The resin is supplied in 25 kg tubs.

How many tubs does Levi need?

[5 marks]

Mass of rubber chips = $14 \times 272.5 = 3815$ kg

Mass of resin = $3815 \div 5 = 763$ kg

No. of tubs = $763 \div 25 = 30.52$

$\Rightarrow$ 31 tubs required

Answer 31

8

Do not write outside the box

10 (c) The table shows the items needed for the playground.

	Space needed
1 climbing frame	6 m by 6 m square
1 swing set	10 m by 4 m rectangle
1 sandpit	semicircle with radius 6 m
2 rockers	each 2 m by 2 m square

The playground is drawn to a scale of 1 to 200 on a centimetre grid.

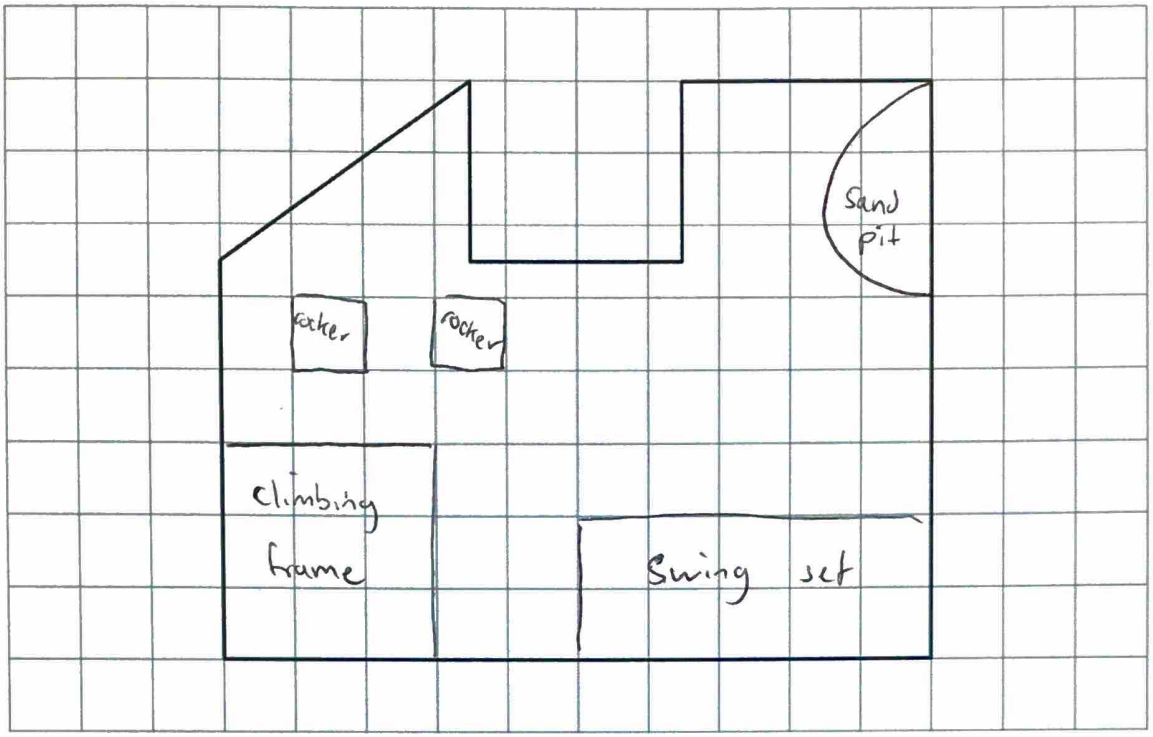
On the grid, design a possible playground.

[5 marks]

Scale = 1:200 so 1 cm on the grid = 2m of playground space

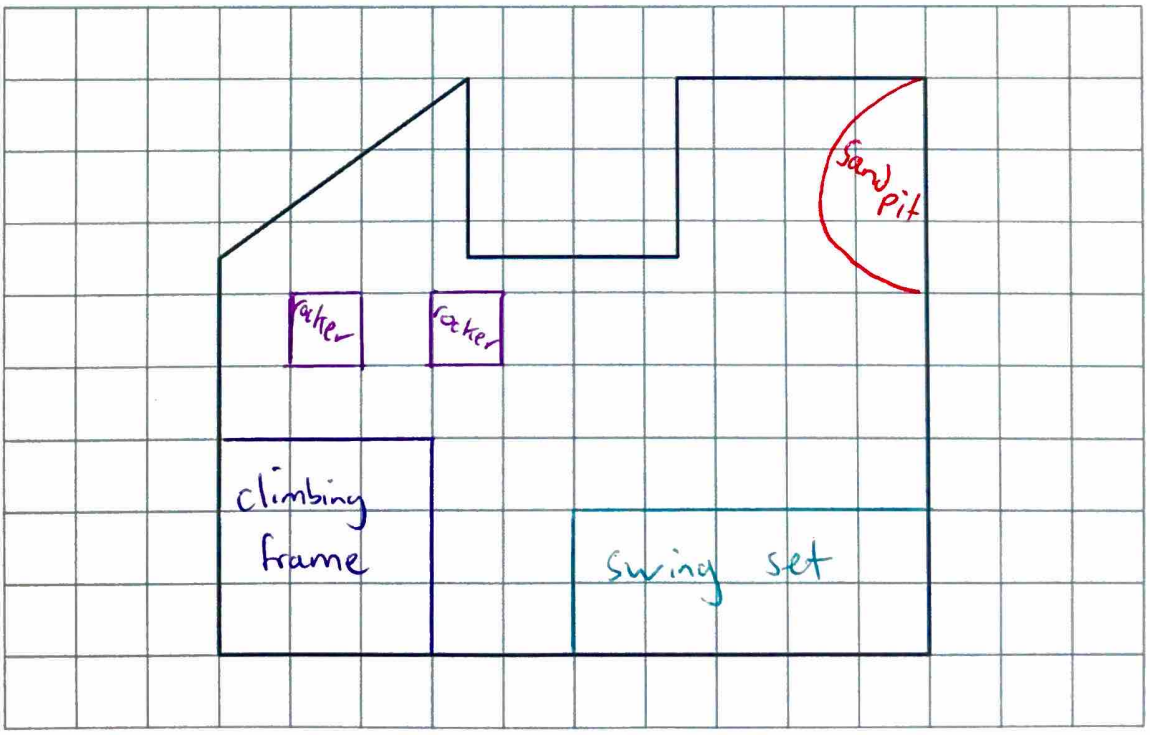
Practise on this grid.

Scale: 1 to 200



Put your answer on this grid.

Scale: 1 to 200



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5

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11 Fundraising

Padma is organising a fundraising event for a charity.

The event will include

a 3-course meal

a singer.

11 (a) Padma is working out how much to charge for a ticket to the event.

The table shows the costs she expects to have.

Hire of venue	£1660
Meal	£14.25 per person
Fee for singer	£400
Other costs	£350

Padma expects 230 people to attend the event.

She wants to make a profit of at least £5000 to give to the charity.

Work out the smallest amount she should charge for a ticket.
Give your answer to a suitable degree of accuracy.
You **must** show your working.

[6 marks]

Meals total cost = £14.25 × 230 = £3277.50

Combined total costs = 1660 + 3277.50 + 400 + 350
= £5687.50

Profit = total revenue (income) − total costs, so
total revenue = profit + total costs

⇒ total revenue = 5000 + 5687.50 = 10687.50

Do not write outside the box

Ticket price = £10687.50 ÷ 230

= £46.467 3913

⇒ round price up to £46.50 or £47

Answer £ 46.50

Question 11 continues on the next page

6

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11 (b) Padma wants to have a number of flyers printed to promote the event.

She sees these adverts for two printing companies

North Printers	**Speedy Printers**
Flyers: 200 for £3.25	Flyers: 1000 for £18 12.5% discount on orders over £70

It would cost £97.50 to have the flyers printed at North Printers.

How much would it cost to have the same number of flyers printed at Speedy Printers?

[5 marks]

97.50 ÷ 3.25 = 30

No. of flyers = 30 × 200 = 6000 flyers

Speedy printers:

6000 ÷ 1000 = 6

6 × £18 = £108 (over £70)

100 - 12.5 = 87.5

£108 × 0.875 = £94.50

Answer £ 94.50

11 (c) At the event, Padma sells 800 raffle tickets for £2 each.

Altogether, the people on one table spend £110 on raffle tickets.

Padma tells the people on the table,

"The probability that someone on this table wins the first prize is more than 5%"

Is she correct?

You **must** show your working.

[3 marks]

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total income from tickets = £2 × 800 = £1600

% : $\left(\frac{110}{1600}\right) \times 100 = 6.875\%$

Turn over for the next question

8

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12 **Quiz**

Eve and Stefan each take part in a quiz every week.
They look at their scores in the first 12 weeks that the quiz takes place.

Here is a summary of the data for Eve.

Range	15
Mean	41.25

The frequency table shows the data for Stefan.

Score	Frequency	Score × freq.
37	1	37
38	1	38
39	0	0
40	4	160
41	2	82
42	0	0
43	4	172

total = 489

Do not write outside the box

12 (a) Stefan says,

"My scores were more consistent."

Is he correct?
Give a reason for your answer.
You **must** show your working.

[2 marks]

Stefan range: $43 - 37 = 6$

Stefan's range of scores is lower

12 (b) Eve says,

"On average, my scores were higher."

Is she correct?
Give a reason for your answer.
You **must** show your working.

[4 marks]

See frequency table for calculation of scores total for Stefan.

Stefan mean = $\frac{489}{12} = 40.75$ (< 41.25)

Eve is correct. Her mean score (average) is higher.

Question 12 continues on the next page

6

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12 (c) In the next quiz there are two multiple choice questions.

Each question has 3 options to choose from.

Stefan does not know the answers to the questions.

He chooses at random an answer to each question.

What is the probability that both his answers are correct?

[2 marks]

$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

Answer $\frac{1}{9}$

2

Turn over for the next question

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ANSWER IN THE SPACES PROVIDED

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13 **Candle company**

Maya runs a company that makes and sells candles.

13 (a) The mass of wax, in grams, needed to make a candle can be worked out using

$$W = v \times \left(\frac{100 - f}{100}\right) \times 0.83$$

W is the mass of wax, in grams

v is the volume of the candle, in cubic centimetres

f is the percentage of fragrance in the candle

The company makes a candle in the shape of a cylinder.
The candle has radius 4 cm and height 15 cm
The candle has 10% fragrance.

Work out the mass of wax, in kilograms, required to make 2500 of these candles.

[7 marks]

Volume of candle: $V = \pi r^2 \times h$

$V = \pi \times 4^2 \times 15 = 240\pi \text{ cm}^3$

Mass of one candle:

$W = \left(\frac{100 - 10}{100}\right) \times 240\pi \times 0.83$

$= 0.9 \times 240\pi \times 0.83$

$= 563.225 \text{ g}$

Mass of 2500 candles:

$563.225 \times 2500 = 1408061.827 \text{ g}$

$\div 1000$ ↳ $= 1408.06 \text{ kg}$

Answer 1408 kg

Do not write outside the box

13 (b) The company sells large candles for £9.60 each, including 20% VAT.

How much VAT is there on each large candle?

[3 marks]

£9.60 = 120% of original value

(120% = 1.2)

£9.60 ÷ 1.2 = £8

£9.60 - £8.00 = £1.60

Answer £1.60

Question 13 continues on the next page

10

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13 (c) Katie works for Maya.

She has an annual income of £19410

She has a personal allowance of £11850

She pays 20% tax on the rest of her income.

How much income tax should she pay in a year?

[3 marks]

£19410 - £11850 = £7560

£7560 × 0.2 = £1512

Answer £ 1512

END OF QUESTIONS

3