

For Edexcel

Name

GCSE Mathematics

Paper 2A (Calculator)

Foundation Tier

Time: 1 hour and 30 minutes



Materials required

Ruler, protractor, compasses,
pen, pencil, eraser.

Tracing paper may be used.

Instructions and Information for Candidates

Write your name in the box at the top of the page.

Answer all the questions in the spaces provided in this question paper.

The marks for each question and for each part of a question are shown in brackets.

The total number of marks for this paper is 100. There are 25 questions in this paper.

Calculators may be used.

If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Advice to Candidates

Show all stages in any calculation.

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.



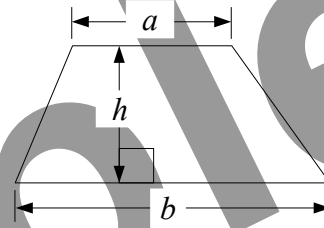
Written by Shaun Armstrong

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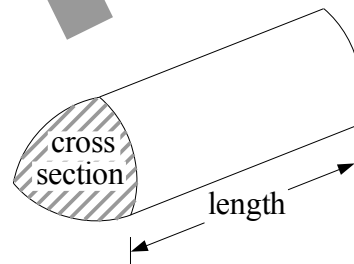
GCSE Mathematics

Formulae: Foundation Tier

Area of a trapezium = $\frac{1}{2}(a + b)h$



Volume of a prism = area of cross section \times length

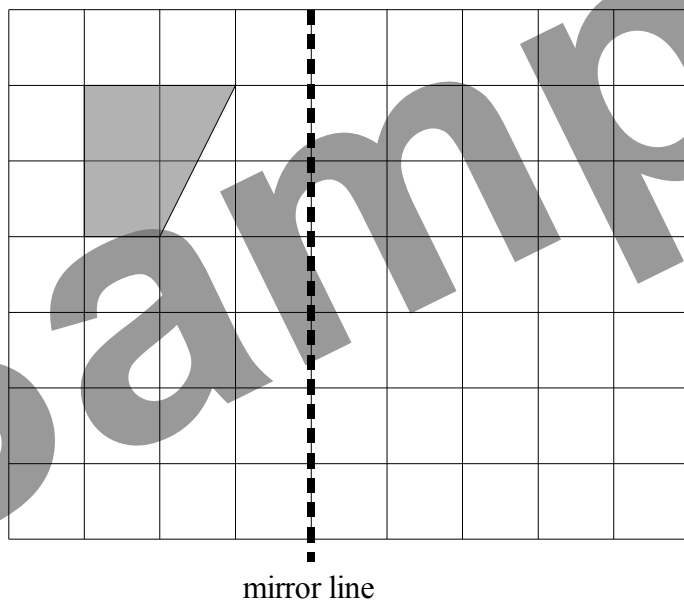


Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

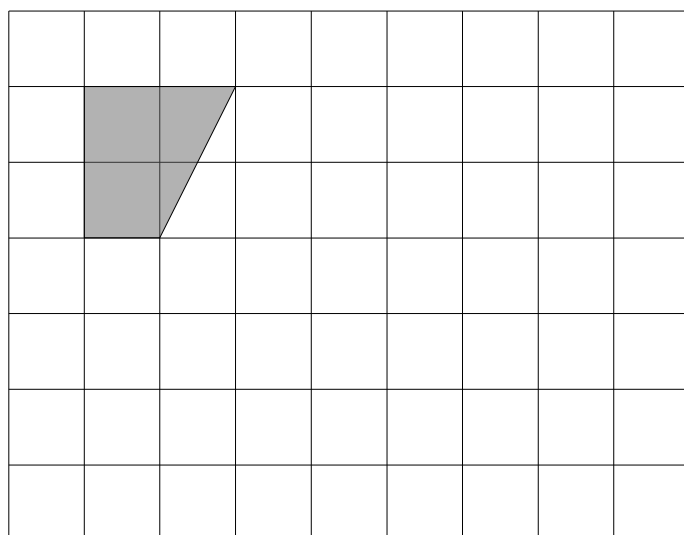
You must write down all the stages in your working.

1. (a) Reflect the shaded shape in the mirror line.



(2)

- (b) On the grid, show how the shaded shape tessellates.
You should draw at least 6 shapes.



(2)

(Total 4 marks)

Q1

2. Mansa wants to collect information about how much students spend on sweets.

Design a suitable question that she could use.
You should include response boxes.

Sample

(Total 2 marks)

Q2

3. (a) Write 0.35 as a percentage.

..... %
(1)

(b) Write 70% as a decimal.

.....
(1)

(c) Write 6% as a decimal.

.....
(1)

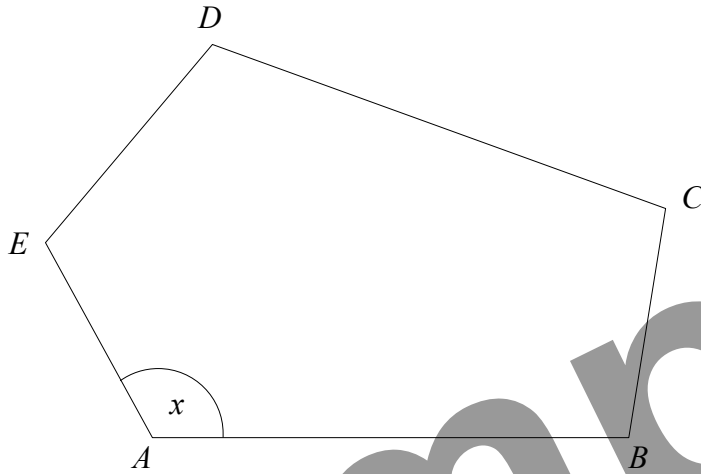
(d) Work out 20% of £180.

£
(1)

(Total 4 marks)

Q3

4.



The diagram is an accurate drawing of shape $ABCDE$.

(a) Write down the mathematical name of this shape.

.....
(1)

(b) Measure the length of the side AB .

..... cm
(1)

(c) Measure the size of the angle marked x .

.....
°
.....
(1)

(d) What type of angle is x ?

.....
(1)

(Total 4 marks)

Q4

5.

Spikey's Gym

Admission Prices:

One day pass £2.80

One month pass £17.50

Suzie goes to Spikey's Gym on eight days each month.

How much does she save each month by buying a one month pass instead of eight day passes?

£

Q5

(Total 3 marks)

6.

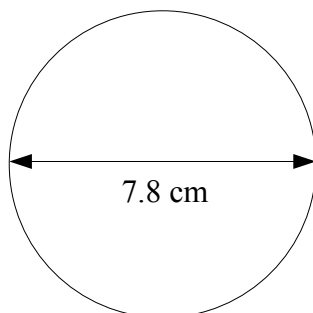


Diagram **NOT**
accurately drawn

The diagram shows a circle of diameter 7.8 cm.

(a) Work out the radius of the circle.

..... cm
(1)

(b) Work out the area of the circle.
Give your answer to an appropriate degree of accuracy.

..... cm²
(2)

(Total 3 marks)

Q6

7. (a) Here is a number sequence.

62 58 54 50

(i) Write down the next number in this sequence.

.....

(ii) Write down the rule for continuing this sequence.

.....

.....

(2)

(b) Here is another number sequence.

249 87 33 15

The rule for continuing this sequence is

DIVIDE BY 3, THEN ADD 4.

Write down the next two numbers in this sequence.

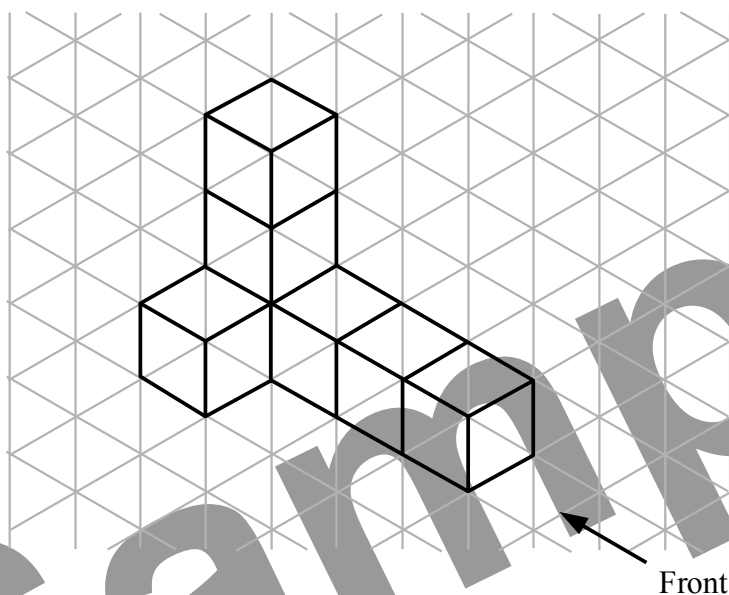
..... ,

(2)

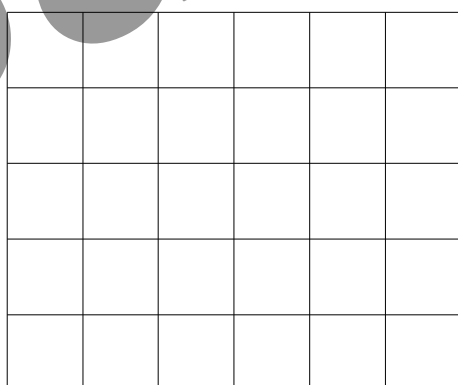
(Total 4 marks)

Q7

8. The diagram shows a 3-D shape made from cubes.

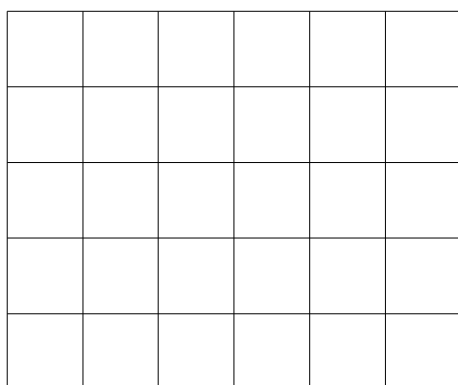


(a) On the grid, draw the front elevation of the shape from the direction shown.



(2)

(b) On the grid, draw the plan of the shape.



(2)

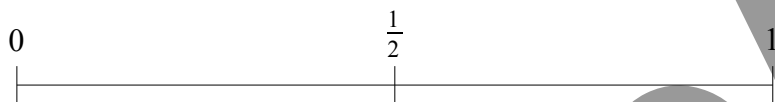
(Total 4 marks)

Q8

9. In each part of this question a probability scale is drawn.

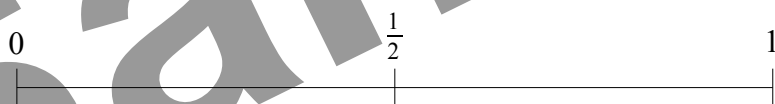
Use an arrow to show the probability of the given event.

(a) A baby will be born somewhere in Scotland tomorrow.



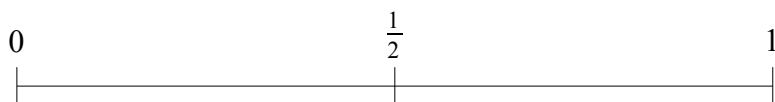
(1)

(b) A 6 is scored when an ordinary dice is rolled.



(1)

(c) A law will be passed next year banning blue cars.

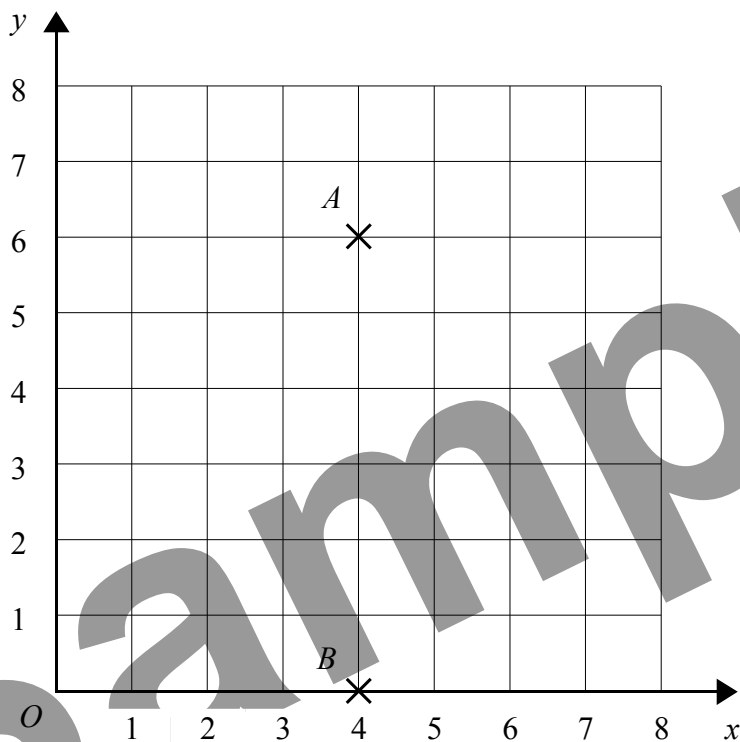


(1)

(Total 3 marks)

Q9

10.



(a) Write down the coordinates of the point

(i) A ,

(.....,)

(ii) B .

(.....,)

(2)

The line AB is a diagonal of a square.

(b) Write down the coordinates of the other two corners of the square.

(.....,)

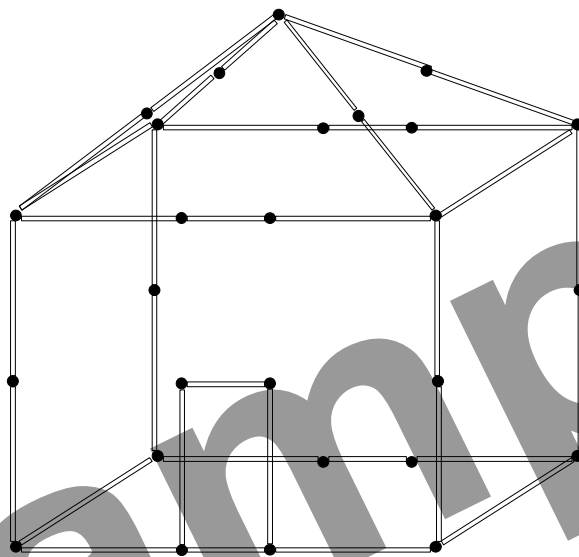
and (.....,)

(2)

(Total 4 marks)

Q10

11. Ellie has a kit for making things out of drinking straws.



The kit contains 120 long straws and 80 short straws.
Making a house uses 30 long straws and 5 short straws.

(a) Work out how many houses Ellie could make using the kit.

.....
(2)

Making a car uses 8 long straws and 22 short straws.

(b) Work out how many straws would be left altogether if Ellie used the kit to make 3 houses and 2 cars.

.....
(3)
(Total 5 marks)

Q11

12.

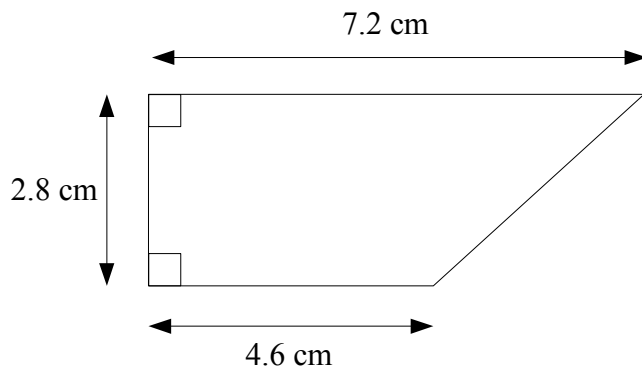


Diagram NOT
accurately drawn

The diagram shows a replacement blade for a knife.
The blade is in the shape of a trapezium.

Find the area of this trapezium.
Give the units with your answer.

Sample

.....

Q12

(Total 3 marks)

13. Martin wins £9000 in a competition.

He spends $\frac{1}{3}$ of his winnings on a new car.

(a) Work out $\frac{1}{3}$ of £9000.

£
(1)

Martin invests £4000 of his winnings in a savings account.
After 2 years, the amount in his account has increased by 10.5%.

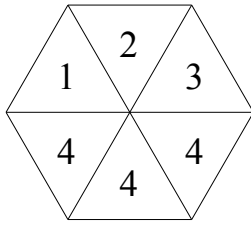
(b) Work out how much is in his account after 2 years.

£
(2)

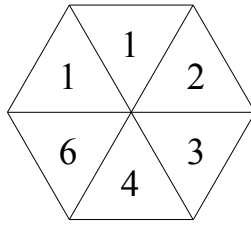
Q13

(Total 3 marks)

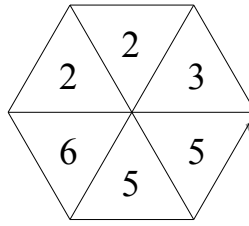
14. Here are four fair spinners.



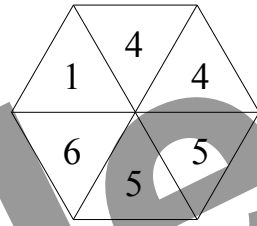
Spinner A



Spinner B



Spinner C



Spinner D

In each part of this question a statement is made.

Write down the letter of the spinner for which the statement is true.

- (a) The probability of getting a 4 is $\frac{1}{2}$.

Spinner
(1)

- (b) It is impossible to get a 3.

Spinner
(1)

- (c) The probability of getting a 2 is the same as the probability of getting a 5.

Spinner
(1)

- (d) The probability of getting a 1 is $\frac{1}{3}$.

Spinner
(1)

- (e) The probability of getting a 4 is twice the probability of getting a 6.

Spinner
(1)

(Total 5 marks)

Q14

15. Ann cycles to her friend's house.

She cycles at a steady speed of 6 metres per second for 25 minutes.

Work out the distance she travels.
Give your answer in kilometres.

Sample

..... km

(Total 4 marks)

Q15

16. Angela recorded the resting pulse, in beats per minute, of 20 people.

Here are her results.

72 63 54 64 80 60 67 63 75 78
61 78 72 57 63 57 66 83 71 69

Draw an ordered stem and leaf diagram to show her results.
You should include a key.

(Total 3 marks)

Q16

17. The cost, in pounds, of taking a computing course is worked out using this formula.

Cost of course = $15 \times$ Number of lessons + 25

Adam takes a course that has 10 lessons.

(a) Work out how much Adam pays for his course.

£ (2)

Eve pays £115 for a taking a different course.

(b) Work out how many lessons there are in Eve's course.

..... (2)

(Total 4 marks)

Q17

18. These are the prices for the items Jim wants to buy.

- Carton of Juice 69p each
- Bread roll 22p each OR 4 for 80p
- Cheddar Cheese £6.50 per kilogram

Complete Jim's shopping bill.

Item	Quantity	Cost (£)
Carton of Juice	5	
Bread roll	8	
Cheddar Cheese	500 g	
TOTAL		

(Total 4 marks)

Q18

19. (a) Simplify

(i) $2x \times 3y$

.....

(ii) $m + 4n + 3m - 6n$

.....

(3)

(b) Make b the subject of the formula $a = 3 + 5b$

$b =$

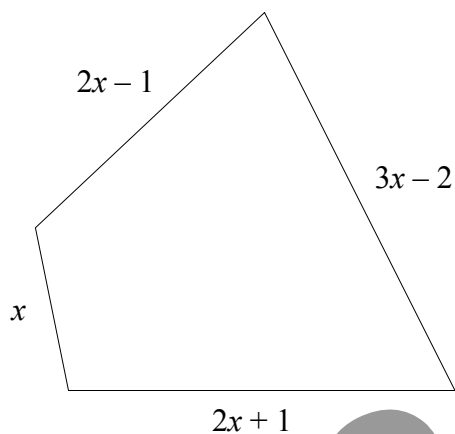
(2)

(Total 5 marks)

Q19

20.

Diagram **NOT**
accurately drawn



The diagram shows a quadrilateral.

The lengths of the sides are given in centimetres.

- (a) Find an expression, in terms of x , for the perimeter of the quadrilateral.
Give your answer in its simplest form.

..... cm
(2)

The perimeter of the quadrilateral is 34 cm.

- (b) Find the length of the longest side of the quadrilateral.

..... cm
(3)

(Total 5 marks)

Q20

21. A company records how many employees are late each day for two weeks. Here are the results.

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	8	2	6	5	7
Week 2	6	5	4	3	6

(a) (i) What is the range of the number of employees who are late?

.....

(ii) Find the median number of employees who are late.

.....

(3)

The company also records how many employees are absent each day. Here are the results for one month.

Number of Employees Absent	Number of Days
2	1
3	5
4	11
5	9
6	4

(b) Work out the mean number of absent employees. Give your answer correct to 1 decimal place.

.....

(3)

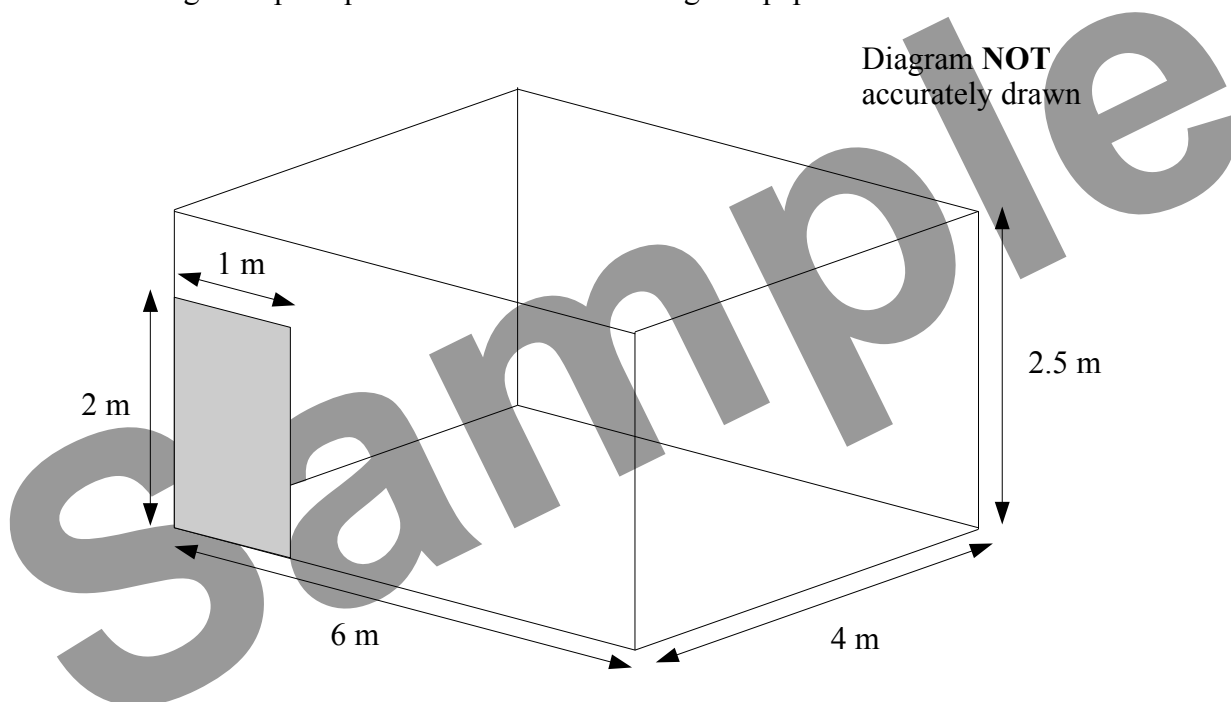
(Total 6 marks)

Q21

22. Bill and Ben are decorators.

Bill charges £70 per wall to hang wallpaper.

Ben charges £6 per square metre covered to hang wallpaper.



The diagram shows the dimensions of Brian's dining room.

He wants wallpaper hung on all four walls except for the door which is shaded.

Work out who will charge less to hang the wallpaper, Bill or Ben, and by how much.
You must show all your working.

.....

(Total 5 marks)

Q22

23. The equation

$$x^3 - x = 100$$

has a solution between 4 and 5.

Use a trial and improvement method to find this solution.

Give your answer correct to 1 decimal place.

You must show **all** your working.

Sample

$x = \dots\dots\dots$

(Total 4 marks)

Q23

24. Zahir wants to change £300 into Euros (€).

There are two places where he can change his money.

<p>Central Bank</p> <p>£1 = €1.44</p> <p>no fee</p>
--

<p>Travel Mart</p> <p>£1 = €1.48</p> <p>2% fee</p>

(a) Work out how many Euros he would get at the Central Bank.

€
(2)

(b) Work out how much extra he would get at the Travel Mart after paying the fee.

€
(3)

(Total 5 marks)

Q24

25.

3 cm



5 cm

Diagram **NOT**
accurately drawn

A rectangle measures 3 cm by 5 cm.

- (a) Work out the perimeter of the rectangle.

..... cm
(1)

- (b) Work out the length of a diagonal of the rectangle.
Give your answer correct to 1 decimal place.

..... cm
(3)

(Total 4 marks)

Q25

TOTAL FOR PAPER: 100 MARKS

END