

For AQA

Name

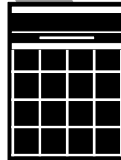
General Certificate of Secondary Education

MATHEMATICS
Foundation Tier
Paper 2A Calculator

F

For this paper you must have:

- a calculator
- mathematical instruments.



Time allowed: 1 hour 30 minutes

Instructions and Information

- Write your name in the box at the top of the page.
- Answer **all** questions in the spaces provided.
- The maximum mark for this paper is 100.
- The marks for questions are shown in brackets.
- If your calculator does not have a π button, take the value of π to be 3.14 unless another value is given in the question.

Advice

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



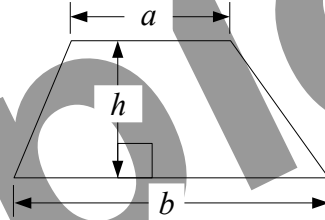
Written by Shaun Armstrong

Only to be copied for use in the purchaser's school or college

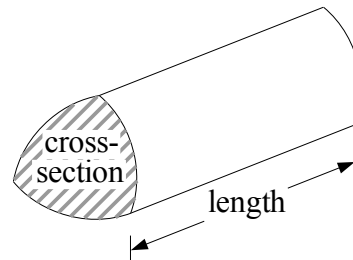
Formulae Sheet: Foundation Tier

You may need to use the following formulae:

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

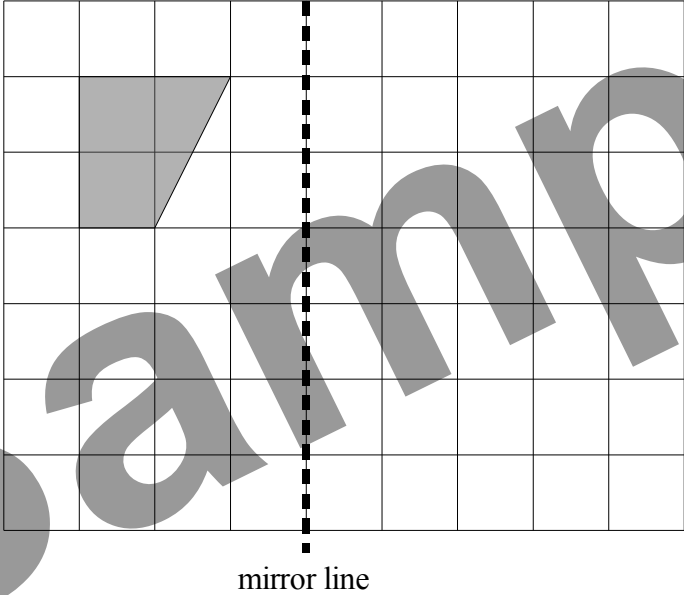


$$\text{Volume of a prism} = \text{area of cross-section} \times \text{length}$$



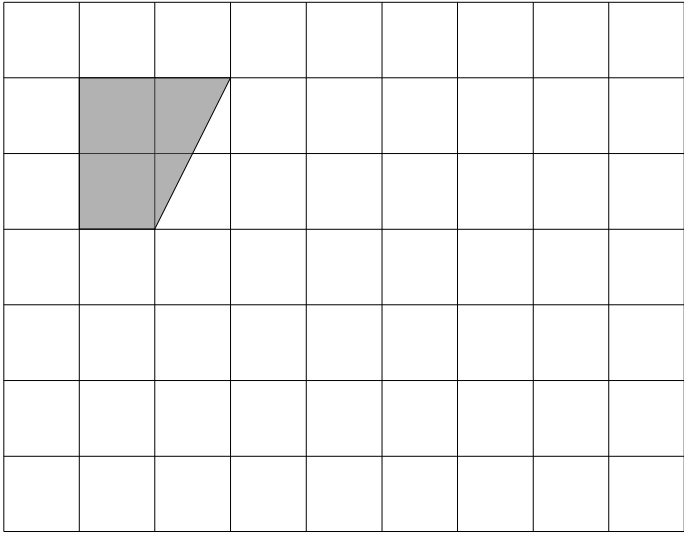
Answer **all** questions in the spaces provided.

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



(2 marks)

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



(2 marks)

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

(2 marks)

3 (a) Write 0.35 as a percentage.

Answer % (1 mark)

3 (b) Write 70% as a decimal.

Answer (1 mark)

3 (c) Write 6% as a decimal.

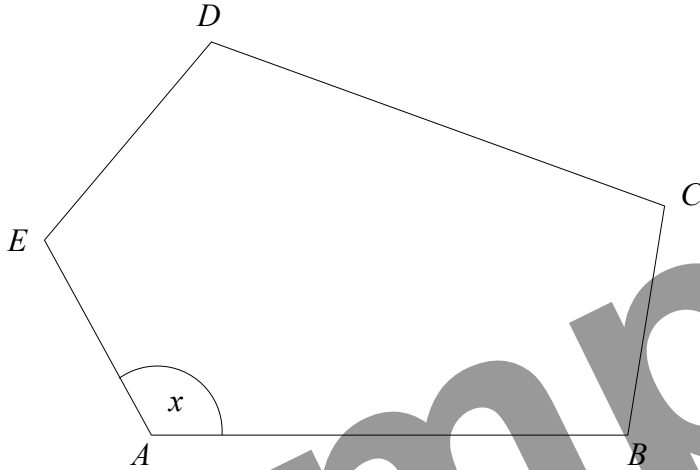
Answer (1 mark)

3 (d) Work out 20% of £180.

.....
.....

Answer £ (1 mark)

4



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

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

Answer (1 mark)

4 (b) Measure the length of the side AB .

Answer cm (1 mark)

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

Answer degrees (1 mark)

4 (d) What type of angle is x ?

Answer (1 mark)

5

Spikey's Gym

Admission Prices:
One day pass £2.80
One month pass £17.50

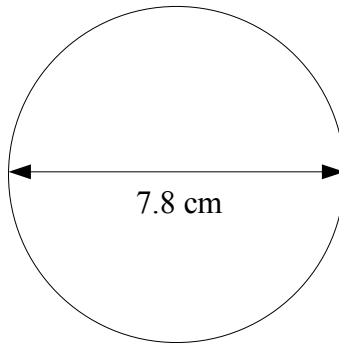
Suzie goes to Spikey's Gym on eight days each month.

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

Sample

Answer £ (3 marks)

6



Not drawn accurately

The diagram shows a circle of diameter 7.8 cm.

6 (a) Work out the radius of the circle.

.....
Answer cm (1 mark)

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

.....
.....
Answer cm² (2 marks)

7 (a) Here is a number sequence.

62 58 54 50

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

Answer (1 mark)

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

.....
.....
(1 mark)

7 (b) Here is another number sequence.

249 87 33 15

The rule for continuing this sequence is

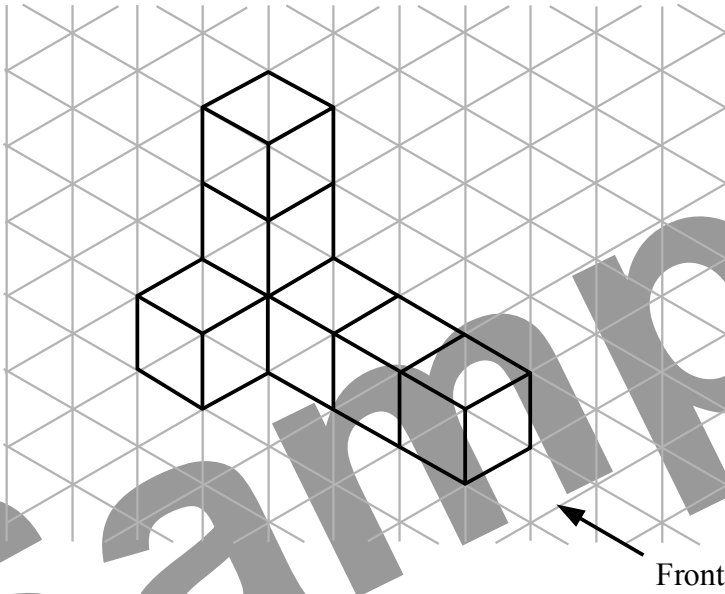
DIVIDE BY 3, THEN ADD 4

Write down the next two numbers in this sequence.

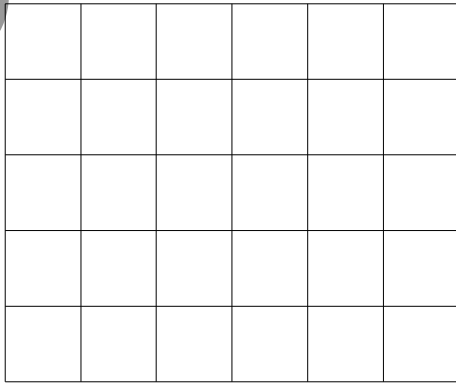
.....
.....
.....

Answer , (2 marks)

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

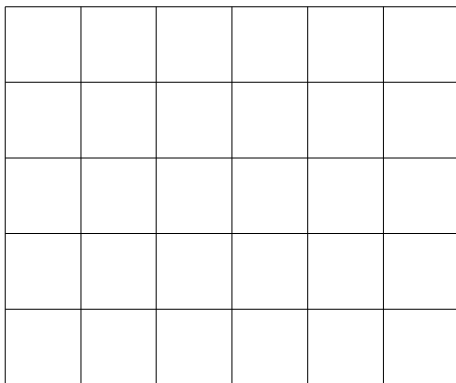


8 (a) On the grid, draw the front elevation of the shape from the direction shown.



(2 marks)

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

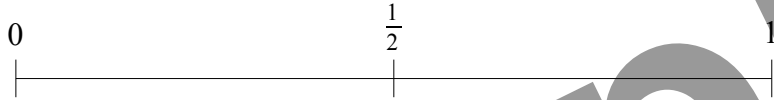


(2 marks)

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

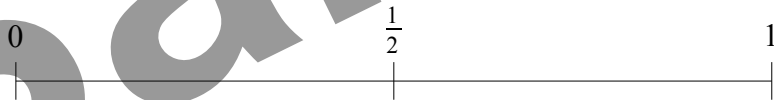
Use an arrow to show the probability of the given event.

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



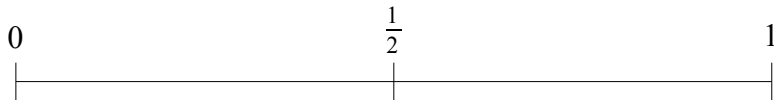
(1 mark)

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



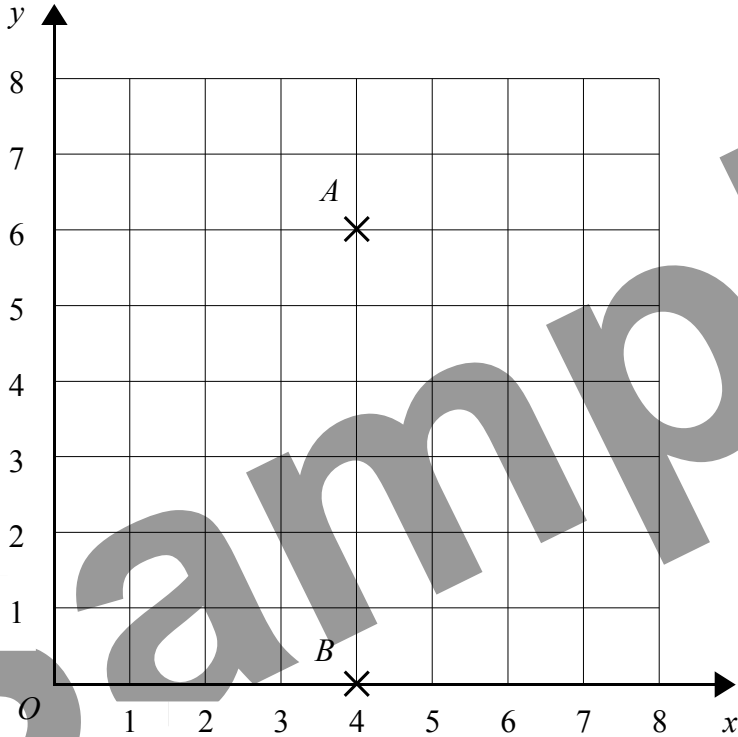
(1 mark)

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



(1 mark)

10



10 (a) Write down the coordinates of the point

10 (a) (i) A ,

Answer (.....,) (1 mark)

10 (a) (ii) B .

Answer (.....,) (1 mark)

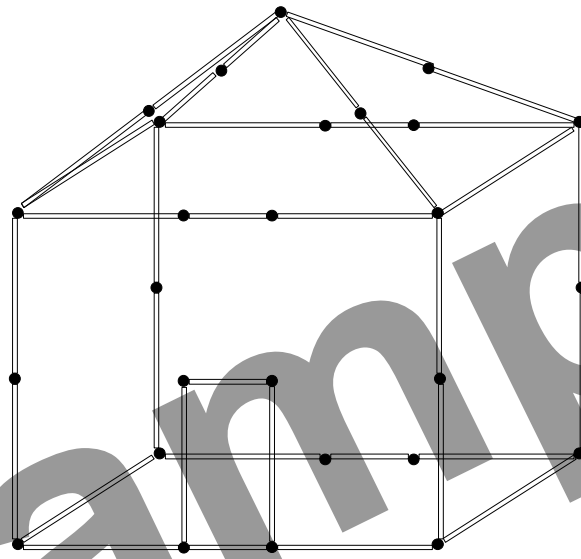
The line AB is a diagonal of a square.

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

Answer (.....,) and

(.....,) (2 marks)

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.

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

.....
.....
.....

Answer (2 marks)

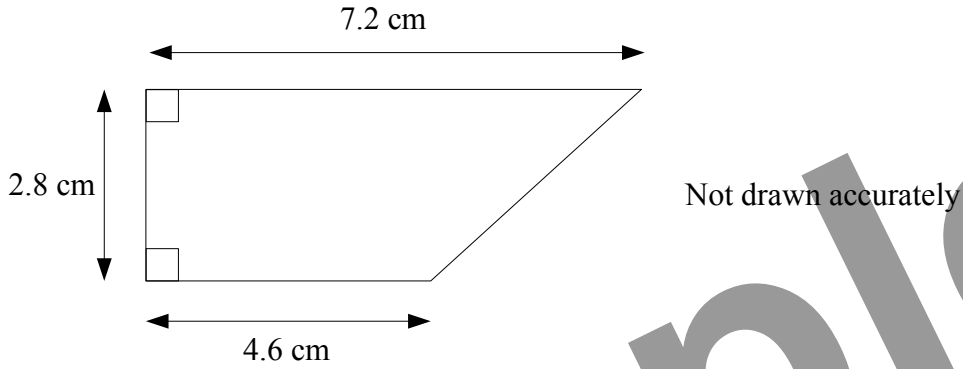
Making a car uses 8 long straws and 22 short straws.

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

.....
.....
.....

Answer (3 marks)

12



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

Answer (3 marks)

13 Martin wins £9000 in a competition.

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

13 (a) Work out $\frac{1}{3}$ of £9000.

.....

Answer £ (1 mark)

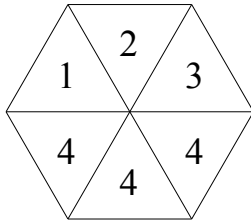
Martin invests £4000 of his winnings in a savings account.
After 2 years, the amount in his account has increased by 10.5%.

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

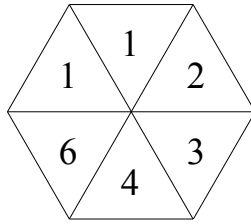
.....
.....
.....

Answer £ (2 marks)

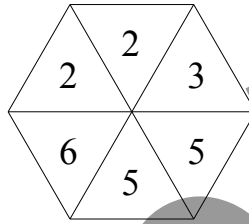
14 Here are four fair spinners.



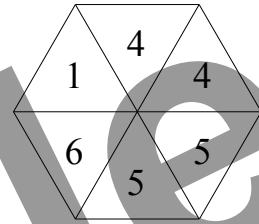
Spinner A



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.

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

Answer (1 mark)

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

Answer (1 mark)

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

Answer (1 mark)

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

Answer (1 mark)

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

Answer (1 mark)

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.

.....
.....
.....
.....

Answer km (4 marks)

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.

(3 marks)

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

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

Adam takes a course that has 10 lessons.

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

.....
.....

Answer £ (2 marks)

Eve pays £115 for a taking a different course.

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

.....
.....
.....

Answer (2 marks)

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

- Carton of Juice 69 p each
- Bread roll 22 p each OR 4 for 80 p
- 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		

(4 marks)

19 (a) Simplify

19 (a) (i) $2x \times 3y$

Answer (1 mark)

19 (a) (ii) $p^2 + p^2$

Answer (1 mark)

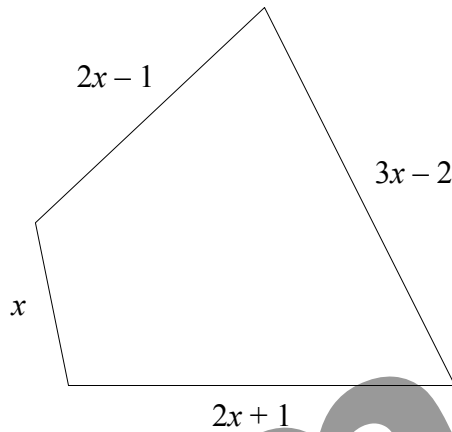
19 (a) (iii) $m + 4n + 3m - 6n$

.....
Answer (2 marks)

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

.....
.....
.....
Answer $b =$ (2 marks)

20



Not drawn accurately

The diagram shows a quadrilateral.

The lengths of the sides are given in centimetres.

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

.....
.....
.....

Answer cm (2 marks)

The perimeter of the quadrilateral is 34 cm.

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

.....
.....
.....
.....

Answer cm (3 marks)

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

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

.....
Answer (1 mark)

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

.....
.....
Answer (2 marks)

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

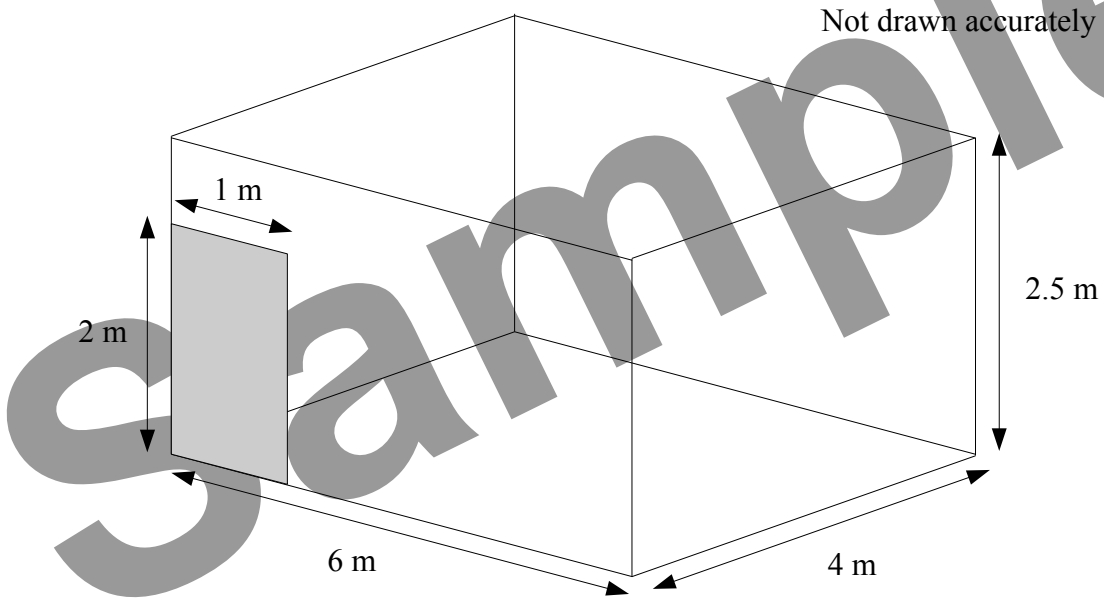
21 (b) Work out the mean number of absent employees.
Give your answer correct to 1 decimal place.

.....
.....
.....
.....
Answer (3 marks)

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.

.....

.....

.....

.....

.....

.....

.....

Answer (5 marks)

23 Use trial and improvement to continue the table and find a solution to the equation

$$x^3 - x = 100$$

Give your answer correct to 1 decimal place.

x	$x^3 - x$	Comment
4	60	Too low
5	120	Too high

Answer $x = \dots\dots\dots$ (3 marks)

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

There are two places where he can change his money.

Central Bank £1 = €1.44 no fee

Travel Mart £1 = €1.48 2% fee
--

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

.....
.....

Answer € (2 marks)

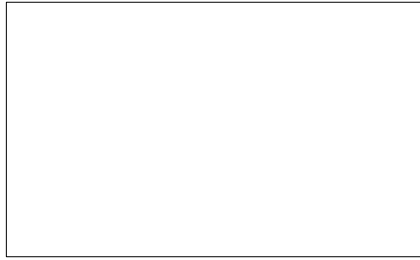
24 (b) Work out how much extra he would get at the Travel Mart after paying the fee.

.....
.....
.....

Answer € (3 marks)

25

3 cm



5 cm

Not drawn accurately

A rectangle measures 3 cm by 5 cm.

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

.....
Answer cm (1 mark)

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

.....
.....
.....
.....
Answer cm (3 marks)

END OF QUESTIONS