

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
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TOTAL	



General Certificate of Secondary Education  
Foundation Tier  
June 2015

# Mathematics (Linear)

4365/1F

## Paper 1

Thursday 4 June 2015 9.00 am to 10.15 am

**F**

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>mathematical instruments.</li> </ul> <p>You must <b>not</b> use a calculator.</p>	
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### Time allowed

- 1 hour 15 minutes

### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- 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.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 70.
- The quality of your written communication is specifically assessed in Questions 1, 6 and 10. These questions are indicated with an asterisk (\*).
- You may ask for more answer paper, tracing paper and graph paper. These must be tagged securely to this answer book.

### Advice

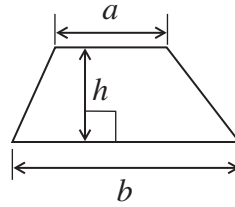
- In all calculations, show clearly how you work out your answer.



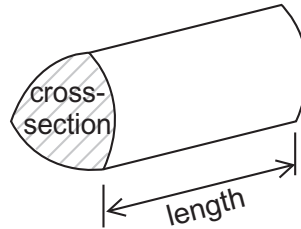
J U N 1 5 4 3 6 5 1 F 0 1

**Formulae Sheet: Foundation Tier**

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



**Volume of prism** = area of cross-section  $\times$  length



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

**1** These are the favourite drinks of 20 people.

Tea	Milk	Orange	Milk	Orange
Milk	Orange	Coffee	Orange	Tea
Coffee	Milk	Orange	Tea	Orange
Orange	Tea	Milk	Orange	Coffee

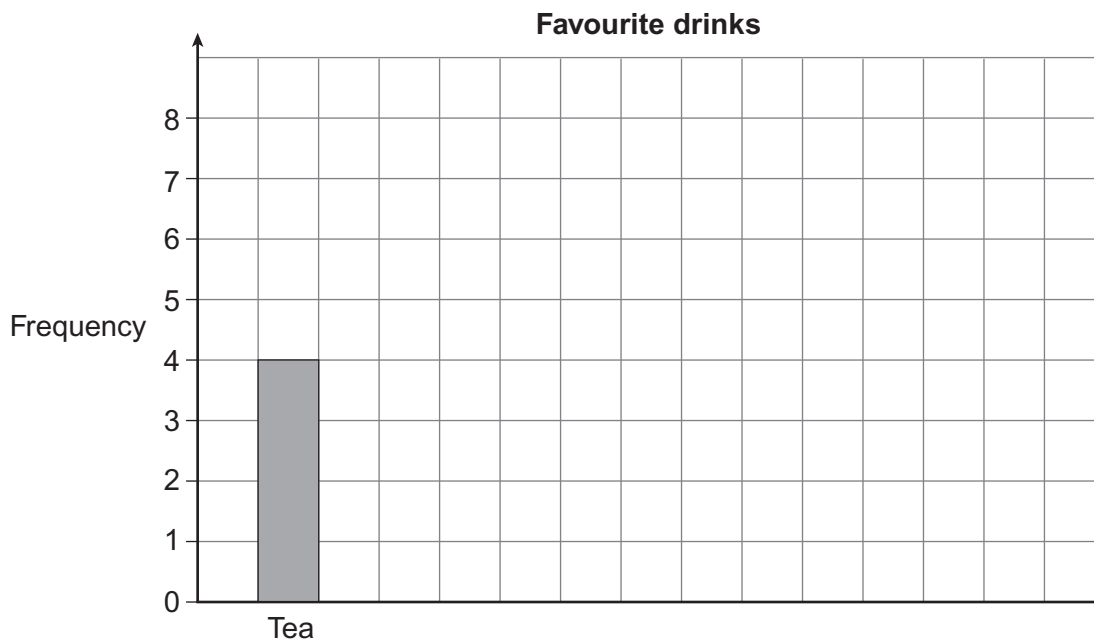
**1 (a)** Complete the table to show the results.

**[2 marks]**

Drink	Tally	Frequency
Tea		4
Milk		
Coffee		
Orange		
<b>Total</b>		20

**\*1 (b)** Complete the bar chart to show the results.

**[2 marks]**



4
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Turn over ►



**2 (a)** Work out the sum of the multiples of 9 between 30 and 60

**[3 marks]**

.....

.....

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.....

Answer .....

**2 (b)** Josh writes down the whole numbers from 1 to 100

How many times does he write the digit 9?  
Some of the numbers are shown to help you.

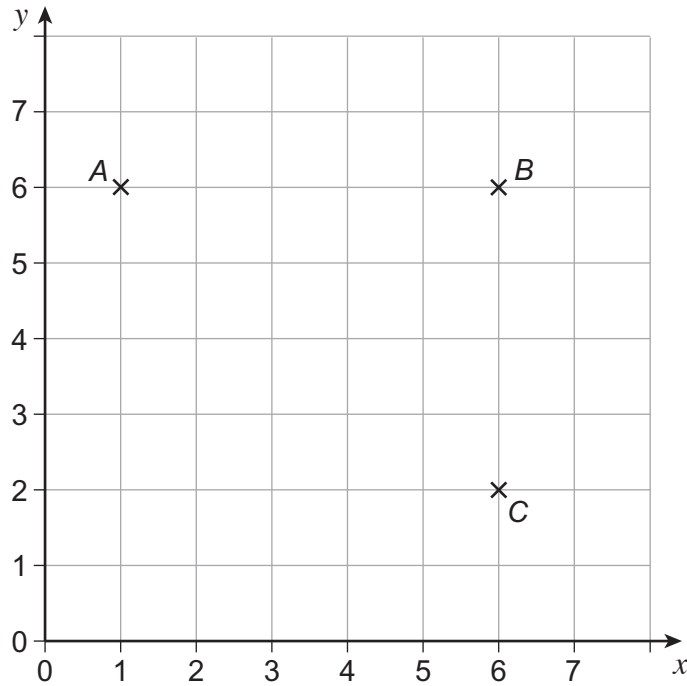
1      2      3 ..... 98      99      100

**[2 marks]**

Answer .....



3 A, B and C are plotted on a centimetre grid.



3 (a)  $ABCD$  is a rectangle.

Plot the point  $D$  on the grid.

[1 mark]

3 (b) Work out the area of  $ABCD$ .  
State the units of your answer.

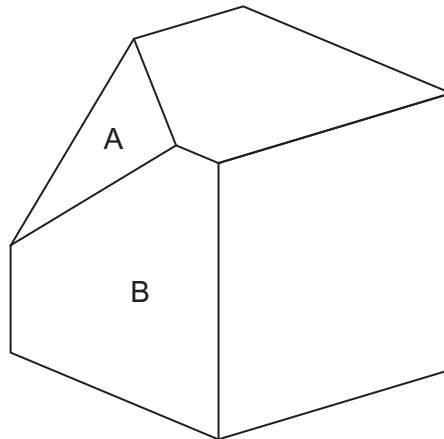
[2 marks]

.....  
.....

Answer .....



4 A cube has one corner cut off as shown.



4 (a) What shape is face A?  
Circle your answer.

[1 mark]

- hexagon
- octagon
- pentagon
- triangle

4 (b) What shape is face B?  
Circle your answer.

[1 mark]

- hexagon
- pentagon
- rhombus
- trapezium

4 (c) Face C is opposite face B.

What shape is face C?

[1 mark]

Answer .....



5 For each statement choose one of the following to make it correct.

greater than                      less than                      equal to

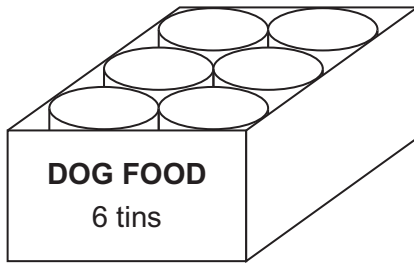
[2 marks]

2.37 is ..... 2.73

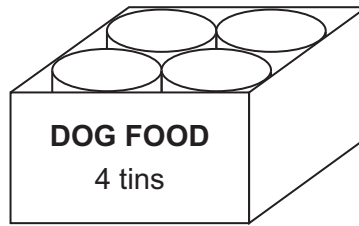
0.65 is .....  $\frac{6}{10}$

42% is ..... 0.42

\*6 Dog food comes in boxes of 6 tins or 4 tins.



£3.00



£1.80

Which box is better value?  
You **must** show your working.

[3 marks]

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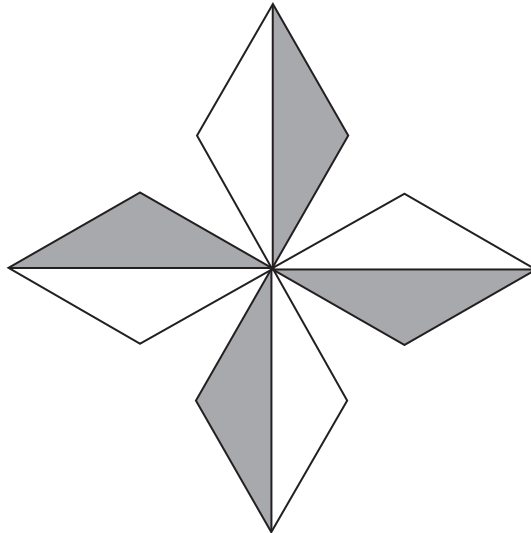
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Answer .....

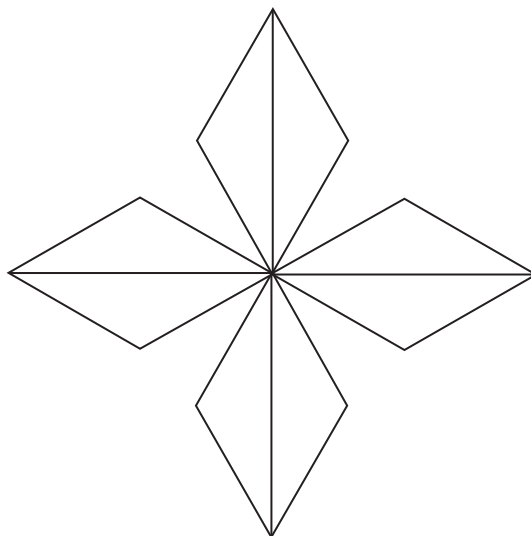


- 7 This diagram has been shaded so that it has  
no lines of symmetry  
**and**  
rotational symmetry of order 4



- 7 (a) Shade parts of this diagram so that it has  
two lines of symmetry  
**and**  
rotational symmetry of order 2

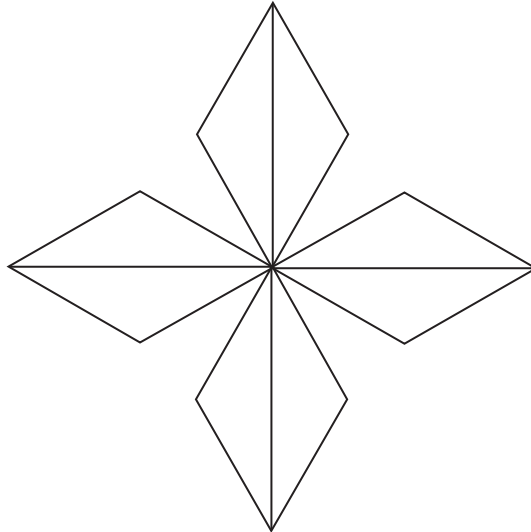
[1 mark]





**7 (b)** Shade parts of this diagram so that it has  
one line of symmetry  
**and**  
no rotational symmetry.

**[1 mark]**



**8** A square has a perimeter of 20 cm  
Work out its area.

**[2 marks]**

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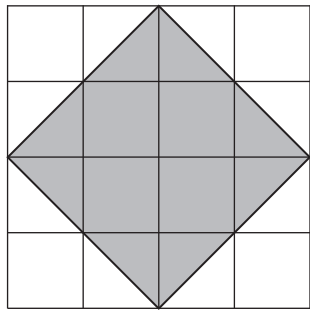
Answer ..... cm<sup>2</sup>

4

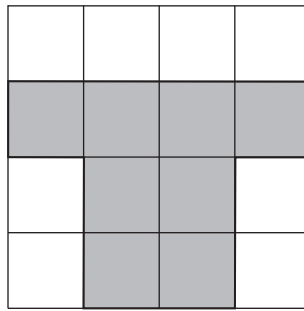
Turn over ►



9 Two shapes are drawn on centimetre grids.



A



B

Which statement is true?  
Tick a box.  
You **must** show your working.

[3 marks]

A has a **smaller** area than B.

A has the **same** area as B.

A has a **greater** area than B.

.....

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**\*10 (a)** The price of a jacket is £70  
The price is to be reduced by 15%

How much will the price be reduced by?

**[2 marks]**

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

Answer £ .....

**10 (b)** The price of a dress is £200  
The price is to be reduced by £40

What percentage will the price be reduced by?

**[2 marks]**

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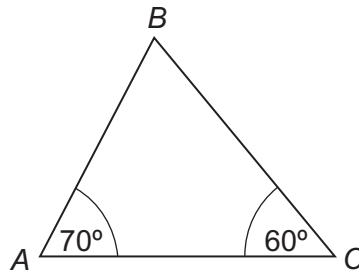
Answer ..... %

7

Turn over ►



11 (a)

Not drawn  
accurately

What type of triangle is  $ABC$ ?  
Circle your answer.

**[1 mark]**

Equilateral

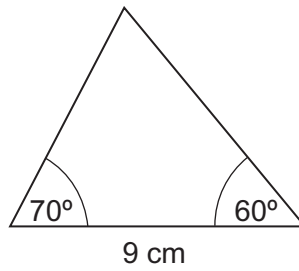
Isosceles

Right-angled

Scalene



11 (b) You will need a ruler and a protractor to answer this question.



Not drawn  
accurately

Make an accurate drawing of this triangle.  
The base has been drawn for you.

[2 marks]



12 These objects are used to make cot mobiles.

Heart



8 grams

Moon



10 grams

Cloud



20 grams

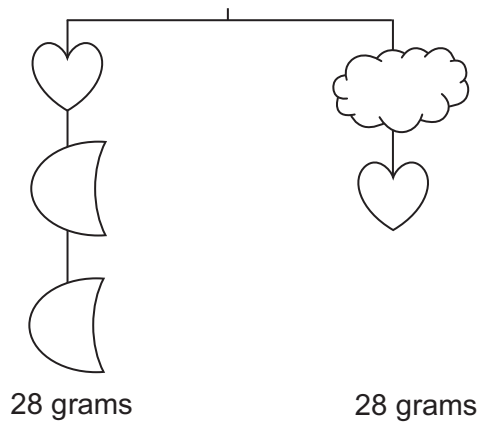
Face



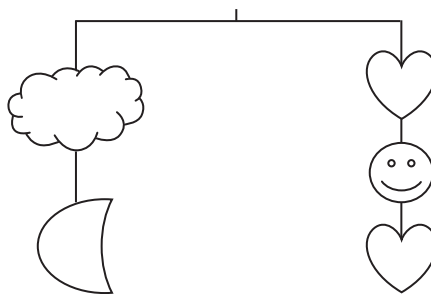
Star



The total weight on each side of a cot mobile must be the same.  
For example



12 (a) Here is a cot mobile.



How much does a **face** weigh?

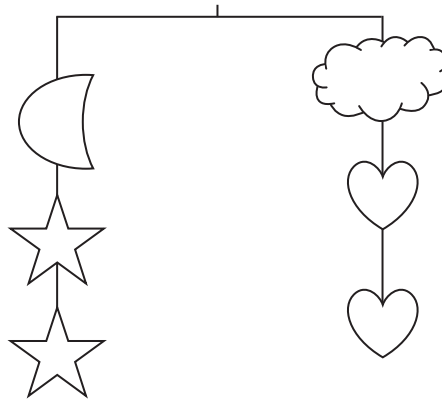
[2 marks]

.....

Answer ..... grams



12 (b) Here is another cot mobile.



How much does a **star** weigh?

[2 marks]

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.....

Answer ..... grams

Turn over for the next question

4

Turn over ►



13 Here is a formula to convert degrees Kelvin to degrees Celsius.

$$C = K - 273$$

13 (a) Work out  $C$  when  $K = 240$

[1 mark]

.....  
.....

Answer .....

13 (b) Work out  $K$  when  $C = -272$

[1 mark]

.....  
.....

Answer .....

13 (c) The formula that converts degrees Fahrenheit to degrees Celsius is

$$C = \frac{5}{9}(F - 32)$$

Which **one** of the following converts degrees Fahrenheit to degrees Kelvin?  
Circle your answer.

[1 mark]

$$K = \frac{5}{9}(F - 305)$$

$$K = \frac{5}{9}(F - 242)$$

$$K = \frac{5}{9}(F - 32) + 273$$

$$K = \frac{5}{9}(F - 32) - 273$$

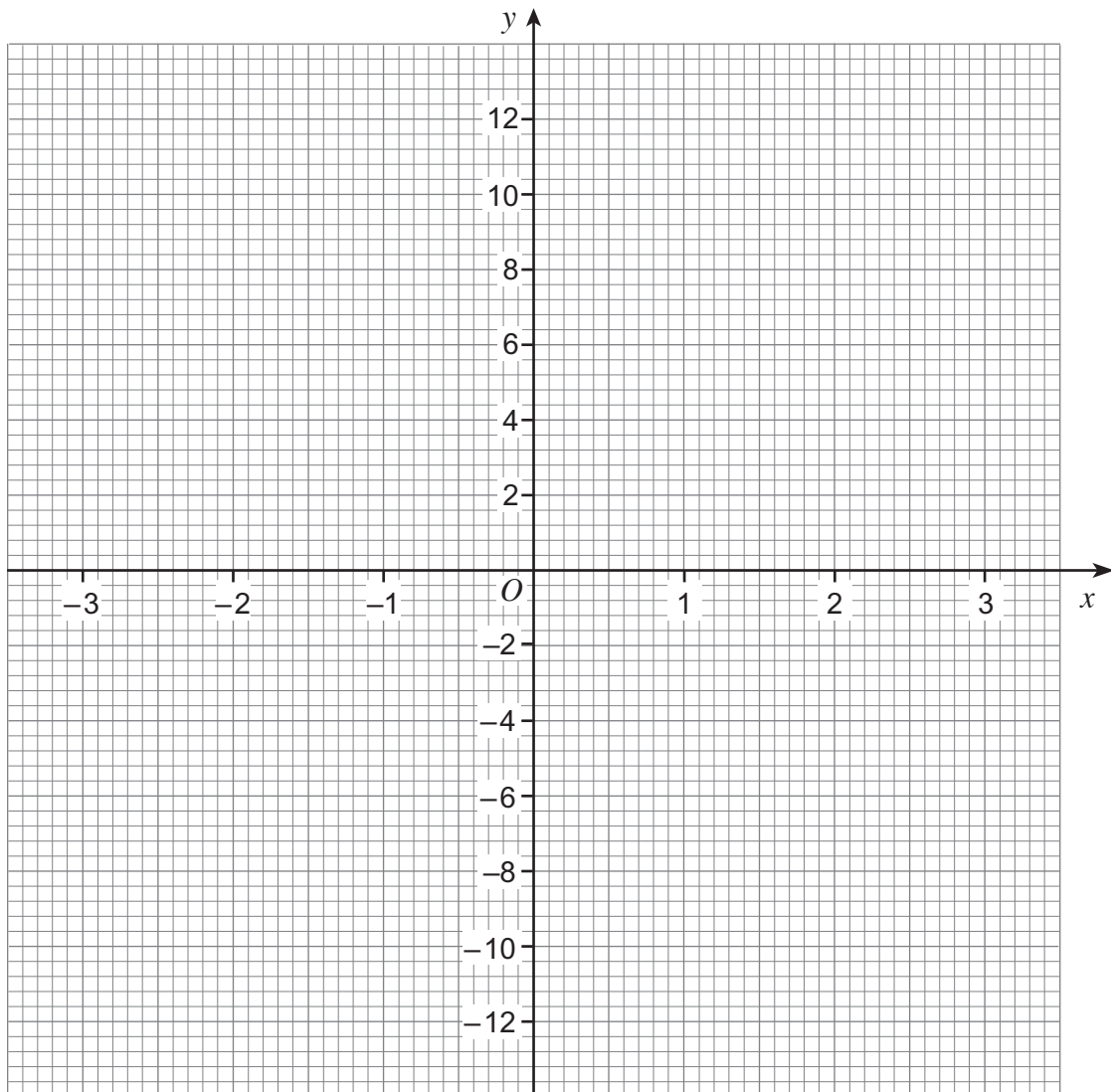




14 Complete the table and draw the graph of  $y = 3x - 2$  for values of  $x$  from  $-3$  to  $3$

[3 marks]

$x$	$-3$	$0$	$3$
$y$		$-2$	



**15 (a)** Which **one** of these is **not** a factor of  $24xy$ .  
Circle your answer.

**[1 mark]**

3

$4y$

$10xy$

$12x$

**15 (b)** Work out the highest common factor (HCF) of 18 and 30

**[2 marks]**

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.....

Answer .....

**16** These instructions are on a bottle of lawn feed.

‘Mix 200 millilitres of lawn feed with 10 litres of water.’

How many millilitres of lawn feed should be mixed with 3 gallons of water?  
Use 1 gallon = 4.5 litres

**[3 marks]**

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Answer ..... millilitres



17 The table shows information about water used in a household.  
The value for April is missing.

Month	Water used (m <sup>3</sup> )
January	16.2
February	18.1
March	15.9
April	
May	17.8
June	21.0

The mean monthly water used for the six months is 18 m<sup>3</sup>

Work out the value for April.

**[3 marks]**

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Answer ..... m<sup>3</sup>

**Turn over for the next question**



**18 (a)** Simplify fully  $3x + 4x - 2x$

**[1 mark]**

.....  
.....

Answer .....

**18 (b)** Make  $w$  the subject of the formula  $z = w + 3$

**[1 mark]**

.....  
.....

Answer .....

**18 (c)** Factorise fully  $4y^2 + 6y$

**[2 marks]**

.....  
.....

Answer .....



19 Use approximations to estimate the value of

$$\frac{21.6 \times 98}{34 + 18.6}$$

[3 marks]

.....

.....

.....

.....

Answer .....

Turn over for the next question

7

Turn over ►



**20** The first buses to X and Y leave a bus station at 7 am

Buses to X leave every 25 minutes.

Buses to Y leave every 20 minutes.

When will the buses to X and Y next leave at the same time?

**[3 marks]**

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.....  
.....

Answer .....

**21** Six whole numbers have

a median of 10

a mode of 11

a range of 4

Work out a possible set of six numbers.  
Write the numbers in order.

**[3 marks]**

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Answer ..... , ..... , ..... , ..... , ..... , .....



- 22** A fishing lake contains thousands of fish.  
The fish are Carp, Bream or Roach.

10 fish are caught.  
The table shows some of the results.

	Carp	Bream	Roach
Frequency	4		
Relative frequency		0.1	

- 22 (a)** Complete the table.

**[3 marks]**

- 22 (b)** The owner uses the results to estimate the proportion of Carp in the lake.

How can she make her estimate more reliable?

**[1 mark]**

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**END OF QUESTIONS**



**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**

