**WJEC CBAC**

## GCSE

### 4352/01

‖‖‖ ‖‖‖‖‖‖ ‖‖ ‖‖‖‖‖ ‖‖‖‖‖ ‖‖ ‖‖‖ ‖‖‖
W15-4352-01

## MATHEMATICS (UNITISED SCHEME)
### UNIT 2: Non-Calculator Mathematics
### FOUNDATION TIER

A.M. WEDNESDAY, 14 January 2015

1 hour 15 minutes

| For Examiner's use only | | |
|---|---|---|
| **Question** | **Maximum Mark** | **Mark Awarded** |
| 1. | 9 | |
| 2. | 4 | |
| 3. | 3 | |
| 4. | 7 | |
| 5. | 2 | |
| 6. | 5 | |
| 7. | 2 | |
| 8. | 3 | |
| 9. | 2 | |
| 10. | 2 | |
| 11. | 6 | |
| 12. | 4 | |
| 13. | 1 | |
| 14. | 6 | |
| 15. | 6 | |
| 16. | 3 | |
| **Total** | **65** | |

CALCULATORS ARE
NOT TO BE USED
FOR THIS PAPER

**ADDITIONAL MATERIALS**

A ruler, a protractor and a pair of compasses may be required.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

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

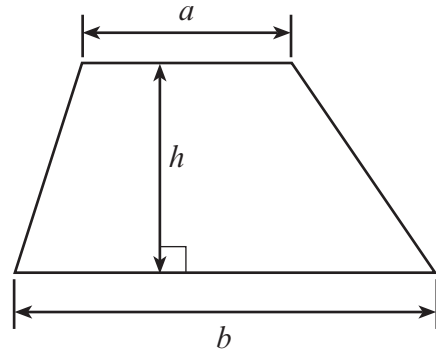Take $\pi$ as 3·14.

**INFORMATION FOR CANDIDATES**

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **6**.
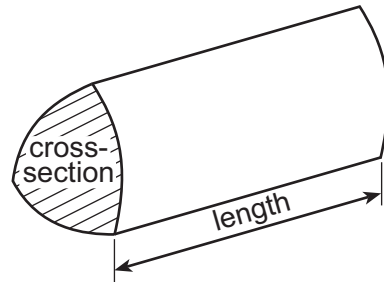
**Formula List**

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



**Volume of prism** = area of cross-section × length

**1.** *(a)* Using the following list of numbers,

34    56    62    27    54    26    52    64

write down

(i)   an odd number, [1]

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

(ii)   a square number, [1]

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

(iii)   two numbers which have a sum of 78, [1]

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

(iv)   a multiple of 6, [1]

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

(v)   the number which is the difference between 107 and 45. [1]

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

*(b)* Gareth pays £8 to have his car cleaned each week.
How much does it cost him to have his car cleaned for 9 weeks? [1]

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

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

*(c)* Clare has four cards, each with a number printed on it.

The numbers are    7,    6,    2,    9.

She uses all four cards to make a four-digit number.
What is the smallest **even** number that Clare can make? [1]

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

*(d)* Write down the value of the 4 in the number 34 718. [1]

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

*(e)* Write 38·254 correct to 1 decimal place. [1]

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

**2.** Draw a line joining each shape to its name.
The first has been done for you.

[4]
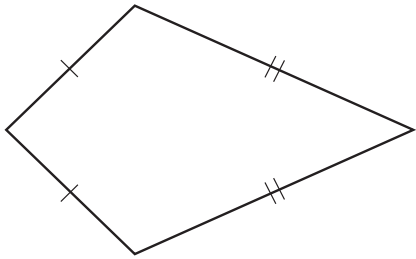
pentagon
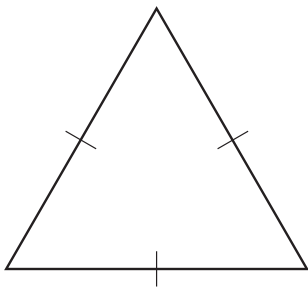
hexagon
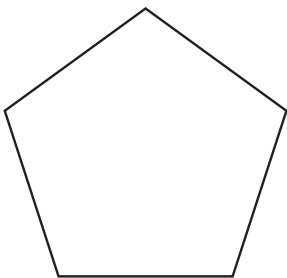
scalene triangle
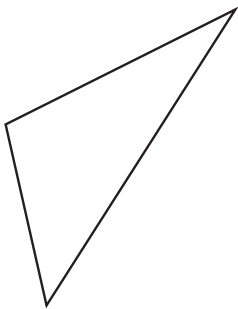
kite
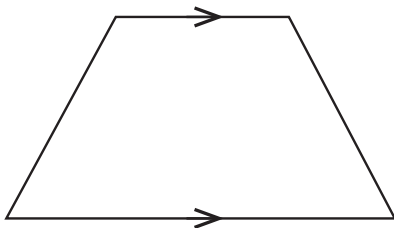
equilateral triangle

trapezium

circle

**3.** There are 20 people in Omar's sports club.

Omar asked each person in the club to select their favourite sport from cricket (C), football (F) and tennis (T).

One person is chosen at random from the 20 people in the club. The probability that the chosen person selected cricket, football or tennis is shown on this probability scale:

```
0                                                    1
|---+---+---+---+---+---+---+---+---+---|
     T        C              F
```
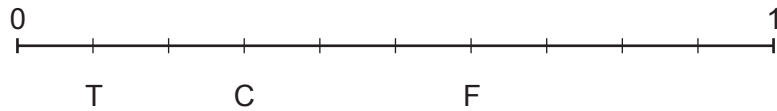
Use the information given in the probability scale to fill in the spaces in the table below for the 20 people in Omar's sports club. [3]

| Favourite sport | Number of people |
|---|---|
| cricket (C) | |
| football (F) | |
| tennis (T) | |

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

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

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

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

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

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

**4.** *(a)* Draw the next pattern in this sequence. [1]
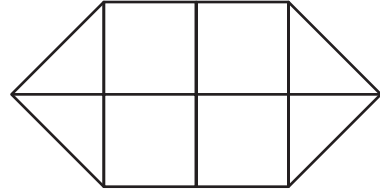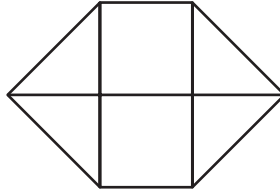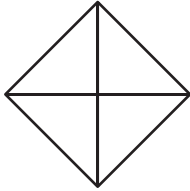


*(b)* (i) Elen gets £$g$ pocket money each month.

How much pocket money does Elen get each year? [1]

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

(ii) Malek had $h$ apples. He gave 3 of them away.

How many apples did Malek have left? [1]

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

*(c)* Solve these equations.

(i) $7x = 420$ [1]

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

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

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

(ii) $23 + x = 31$ [1]

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

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

*(d)*   Simplify  $4k + 8m - 15m + 6k$.   [2]

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

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

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

**5.**   *AB* is a straight line.

Calculate the size of angle $x$.   [2]
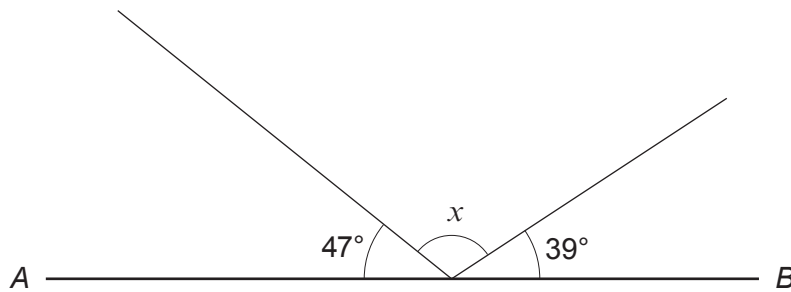


*Diagram not drawn to scale*

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

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

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

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

$x = $ ........................ °

**6.** *You will be assessed on the quality of your written communication in this question.*

In her local supermarket, Bethan saw some packs of cheese, each labelled

Welsh Cheddar

£1                    170 g
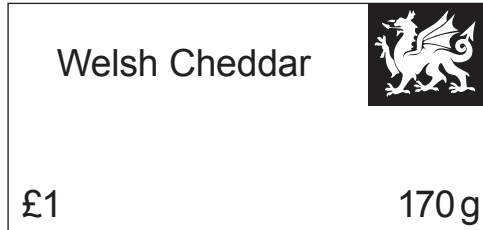
The label on the shelf for the same packs of cheese said

Welsh Cheddar

£4 per kilogram
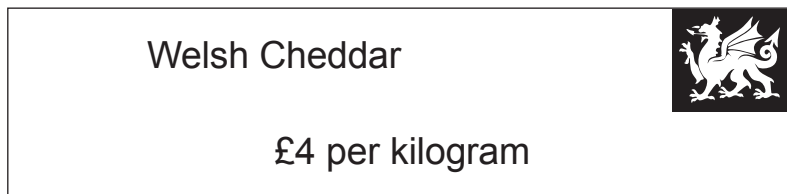
Explain clearly how Bethan knew that one of these labels must be wrong.

You must show all your working. [5]

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

**7.** Bill is making a model of a garden.
*AB* is one edge of the garden.

Bill wants to show the position of a tree at *T* where

- $T\hat{A}B = 35°$
- *AT* = 7 cm.

On the diagram, mark the position of *T* with a cross. [2]

A ————————————————————————————————— B

**8.** Griff bought a cake.
He cut it into 8 equal pieces and ate 3 of these pieces.
The label on the cake's box stated that there were 32·8 g of protein in the whole cake.
How many grams of protein did Griff eat? [3]

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

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

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

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

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

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

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

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

**9.** Bronwen grows some flowers.
Each flower is red, yellow or white.
Bronwen picks one of the flowers at random.
The probability that the flower is red is 0·3.
The probability that the flower is yellow is 0·15.
What is the probability that the flower is white? [2]

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

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

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

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

**10.** On the grid below, draw an enlargement of the given shape, using a scale factor of 3. [2]
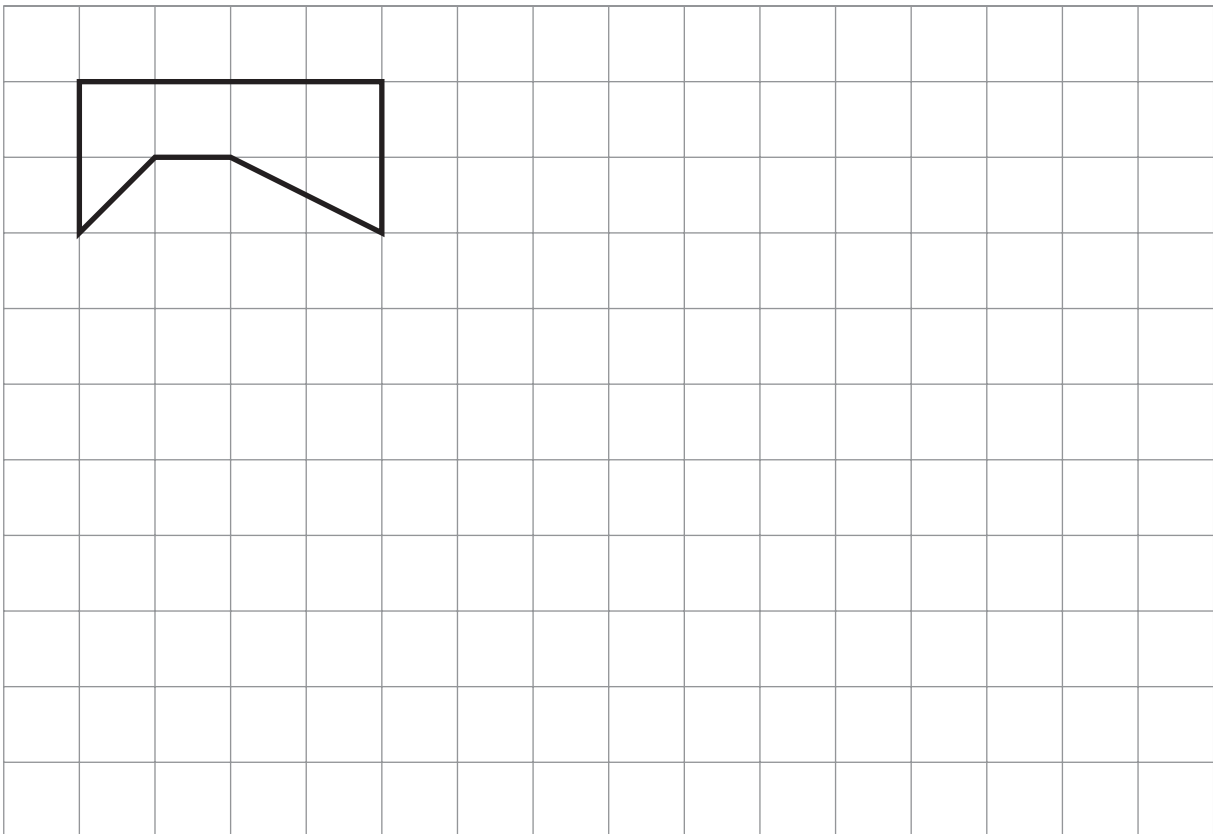
**11.** *(a)* Solve the equation $5x - 16 = 29$. [2]

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

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

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

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

*(b)* The table shows the value of $y = 2x - 1$ for $x = 2$.

| $x$ | 0 | 2 | 4 |
|-----|---|---|---|
| $y$ |   | 3 |   |

(i) Complete the table for $y$ when $x = 0$ and $x = 4$. [1]

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

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

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

(ii) On the grid below, draw the graph of $y = 2x - 1$ for values of $x$ from $x = 0$ to $x = 4$. [3]

**12.**



*Diagram not drawn to scale*

*ABCD* is a parallelogram.

$B\hat{C}D$ = 60°.
$A\hat{E}B$ = 108°.
$A\hat{B}E$ = 33°.

Calculate the size of angle $x$. [4]

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

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

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

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

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

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

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

..............................................................................................................................................................
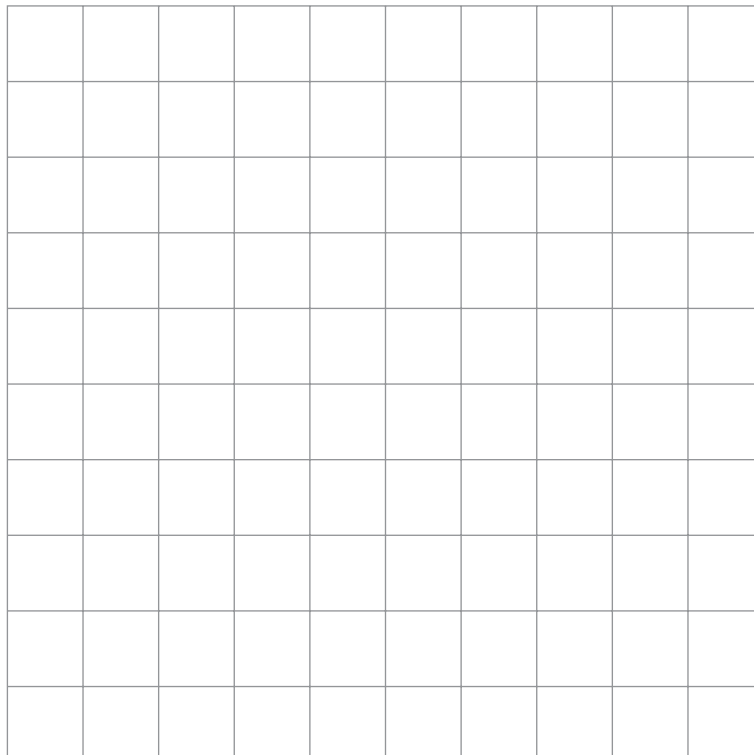
**13.** Translate the given triangle 3 units to the right and 2 units down. [1]



**Turn over.**
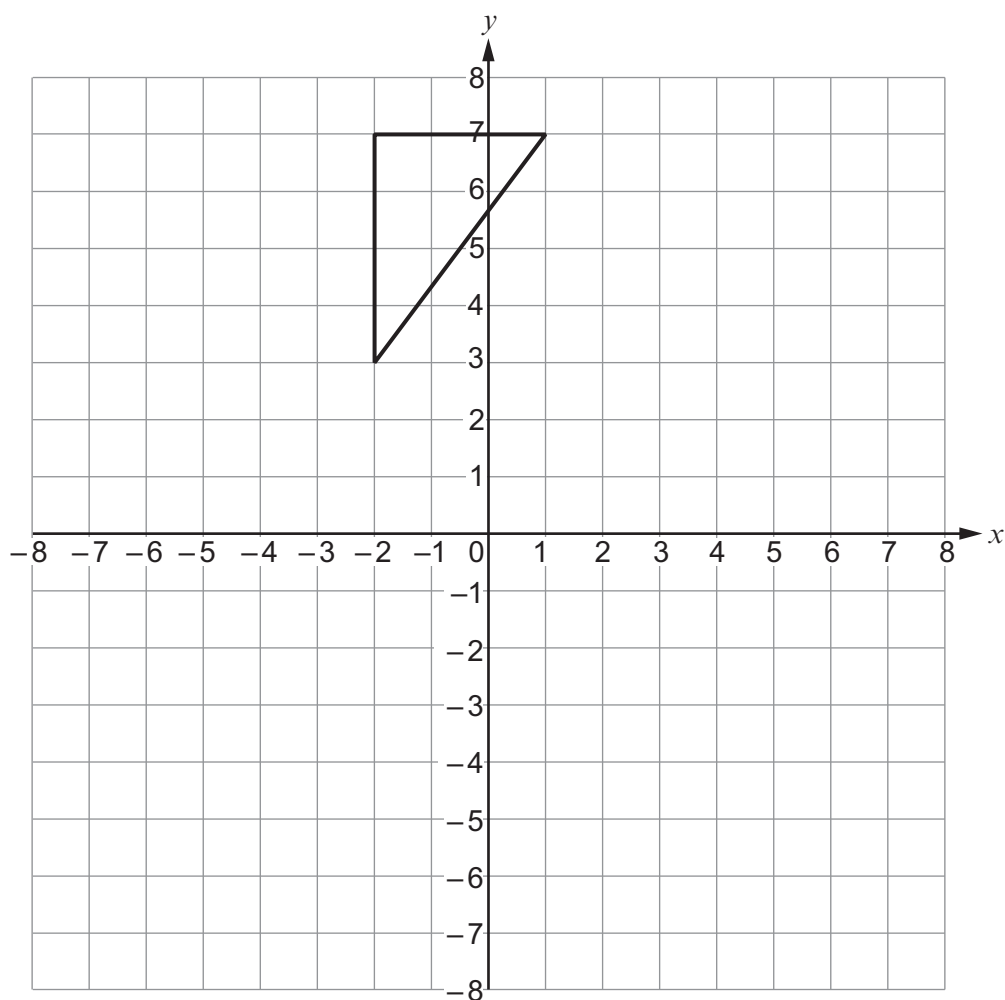
**14.** Adrian wanted to rent a holiday cottage in Scotland for his family.

He saw the following advertisement.

> **Rent a Scottish cottage!**
>
> £620 per week in August.
>
> Pay now and get 15% off.
>
> If you cancel, any money paid will be returned to you, less £60.

Adrian booked the cottage immediately and paid for one week in August.

The next day, Adrian saw an advertisement for a different Scottish cottage.

This cost £69 **per night** in August.

Would Adrian have saved any money if he had cancelled the booking for the first cottage and then rented the second cottage?

You must show all your working. [6]

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

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

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

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

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

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

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

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

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

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

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

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

**15.** Alan is a professional darts player. He claims that, with any throw, he can hit the bull's eye (in the centre of the board) with a probability of 50%.

Ffion challenges him to prove this by throwing 5 sets of 10 darts.

Alan's results are given in the following table.

| Number of throws | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|
| Number of throws hitting the bull's-eye | 4 | 8 | 3 | 3 | 2 |

Ffion then creates a table to show the cumulative number of bull's-eyes and to calculate the relative frequencies.

| Total number of throws | 10 | 20 | 30 | 40 | 50 |
|---|---|---|---|---|---|
| Total number of throws hitting the bull's-eye | 4 | 12 | | | |
| Relative frequency of hitting a bull's-eye | $\frac{4}{10}$ | $\frac{12}{20}$ | | | |
| | 0·4 | 0·6 | | | |

*(a)* Complete the table above. [3]

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

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

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

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

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

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

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

*(b)* Draw a graph to show the relative frequency of hitting a bull's-eye. [2]

Relative frequency of
hitting a bull's-eye

1·0

0·8

0·6

0·4

0·2

0

0      10      20      30      40      50

Total number of darts thrown
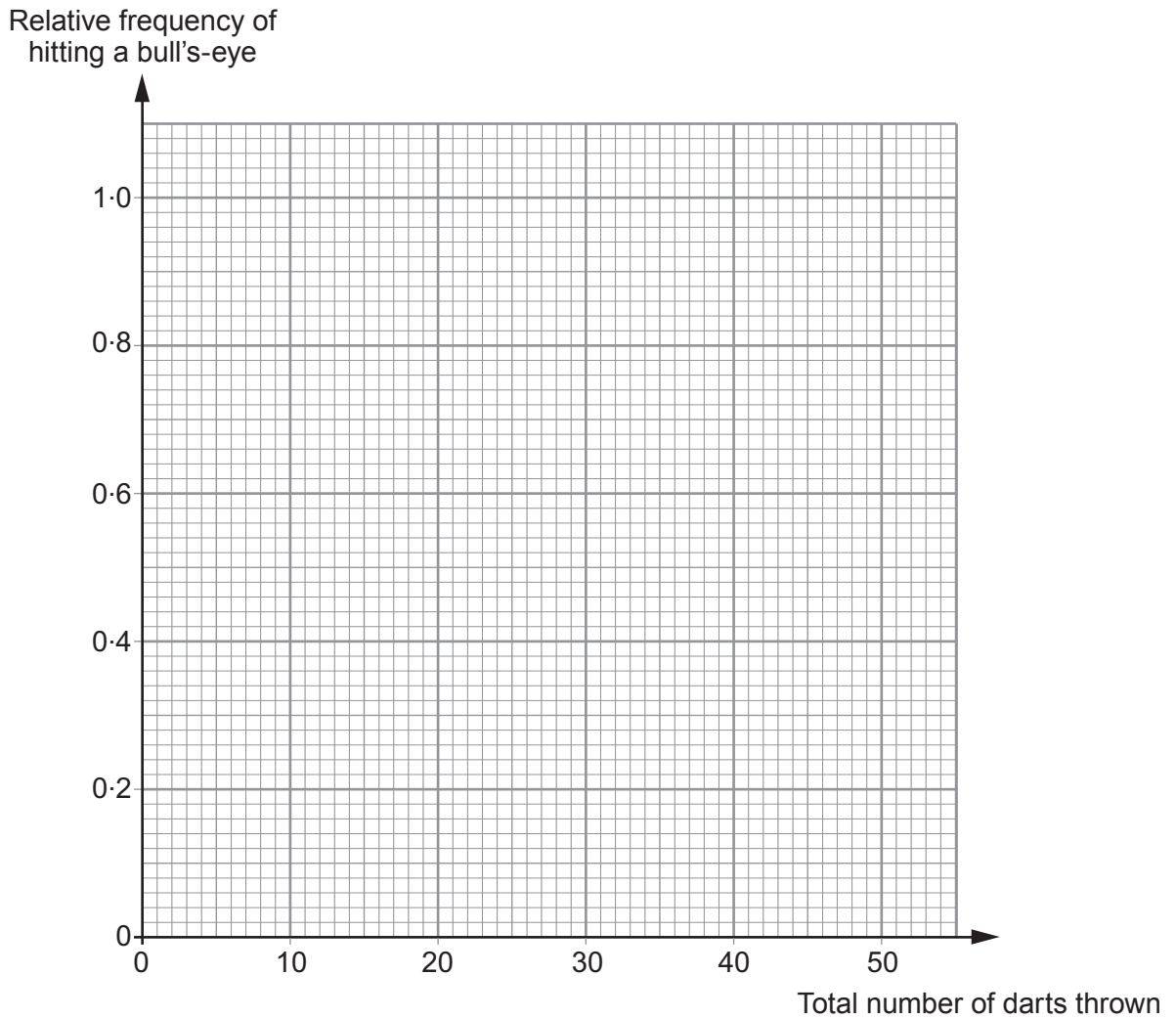
*(c)* Is Alan correct to claim that he has a probability of 50% of hitting the bull's-eye?
Explain your answer. [1]

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

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

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

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

**16.** When she was in Year 7, Yasmin could run 800 metres in 3 minutes and 20 seconds.

Four years later, when she was in Year 11, she could run 800 metres in 2 minutes and 48 seconds.

Find the percentage improvement in her time. [3]

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

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

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

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

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

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

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

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

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

**END OF PAPER**

**BLANK PAGE**