

Please write clearly, in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

F

Foundation Tier

Paper 3 Calculator

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments
- 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.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- 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.

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 - 21	
22 - 23	
24	
TOTAL	

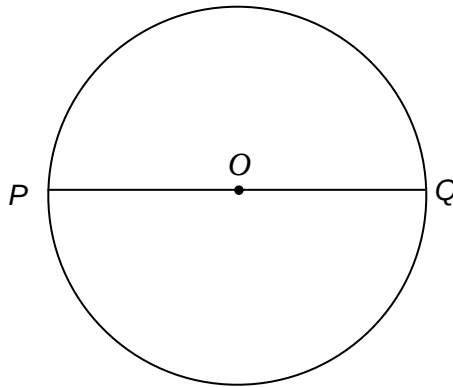
- 1 Write $\frac{4}{5}$ as a decimal.

[1 mark]

Answer _____

- 2 Write down the word that describes the straight line PQ .

[1 mark]



Answer _____

- 3 Round 2445 to the nearest 100

[1 mark]

Answer _____

- 4 Work out one quarter of 5 hours.
Give your answer in minutes.

[2 marks]

Answer _____ minutes

- 5 Simplify $7c + 5d - 4c + 3d$ [2 marks]

Answer _____

- 6 Lin uses these three cards to make 3-digit numbers.



How many **different** 3-digit numbers can she make that are greater than 500?

[2 marks]

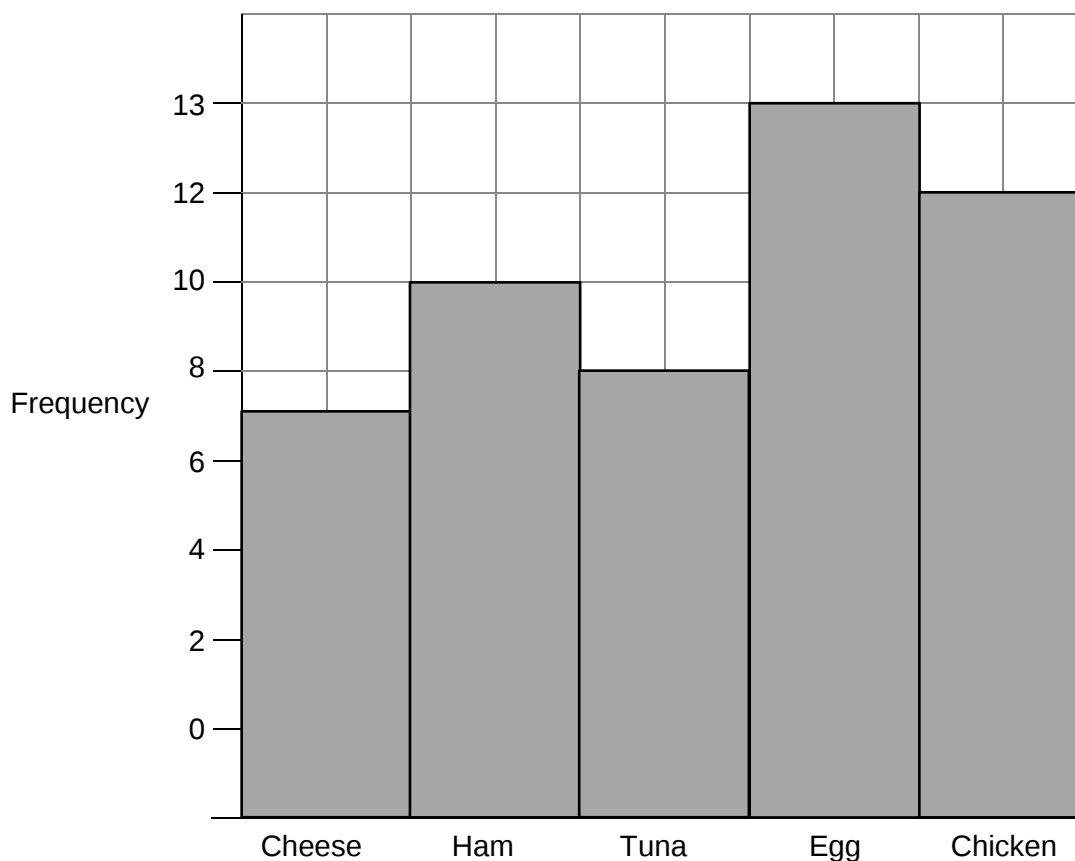
Answer _____

7

The table shows the number of different type of sandwiches sold in a café in one morning.

	Ham	Cheese	Tuna	Egg	Chicken
Number sold	7	10	8	13	12

Lily uses this information to draw a bar chart.



Write down **two** mistakes that she has made.

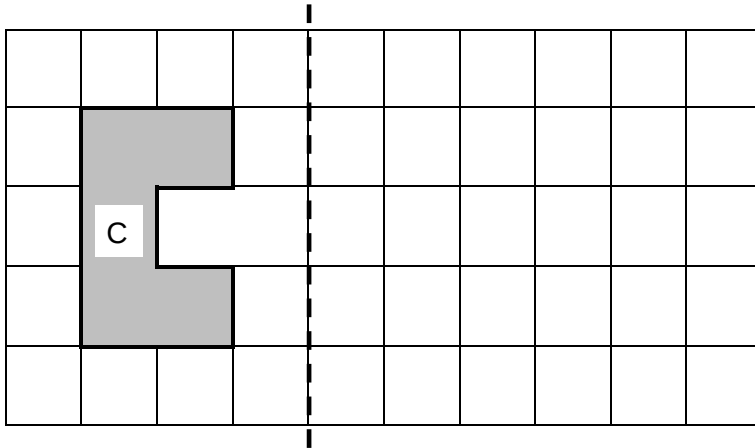
[2 marks]

Mistake 1

Mistake 2

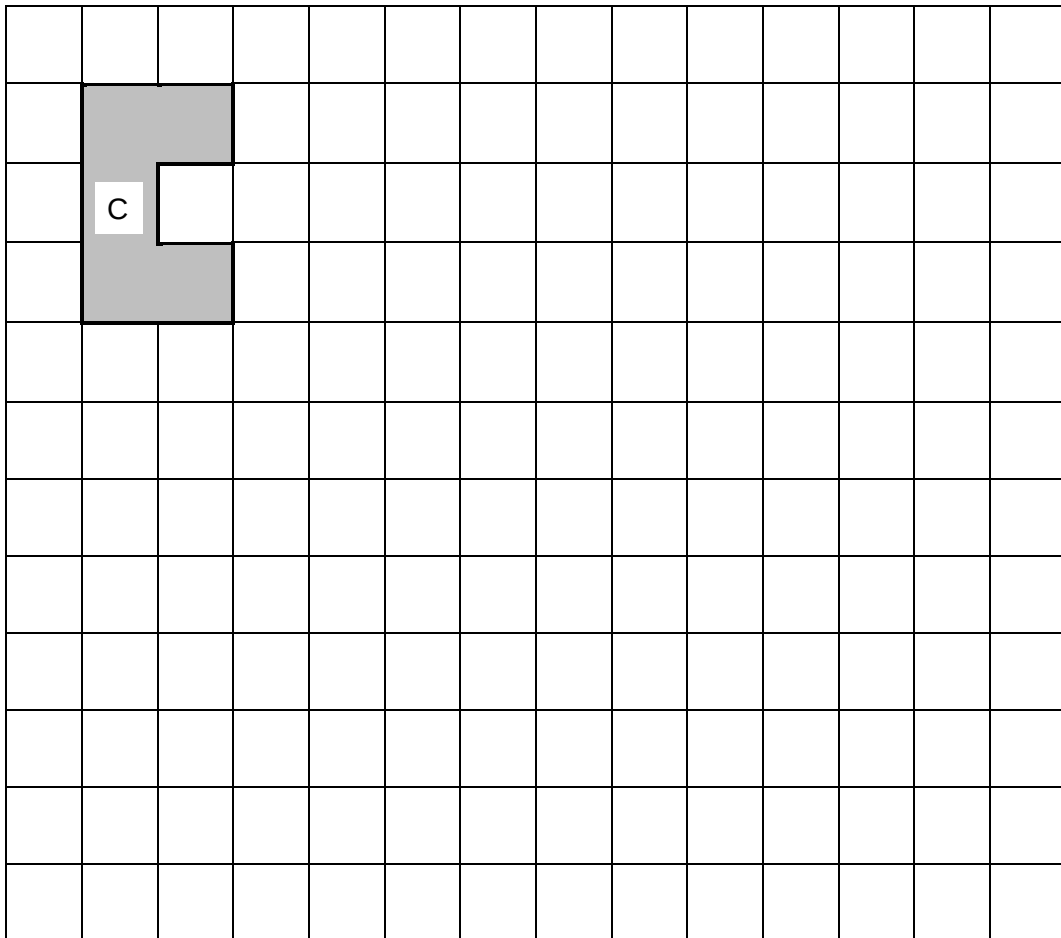
- 8 (a)** Reflect shape C in the mirror line.

[1 mark]



- 8 (b)** On this grid draw a shape that is an enlargement, scale factor 2, of shape C.

[1 mark]



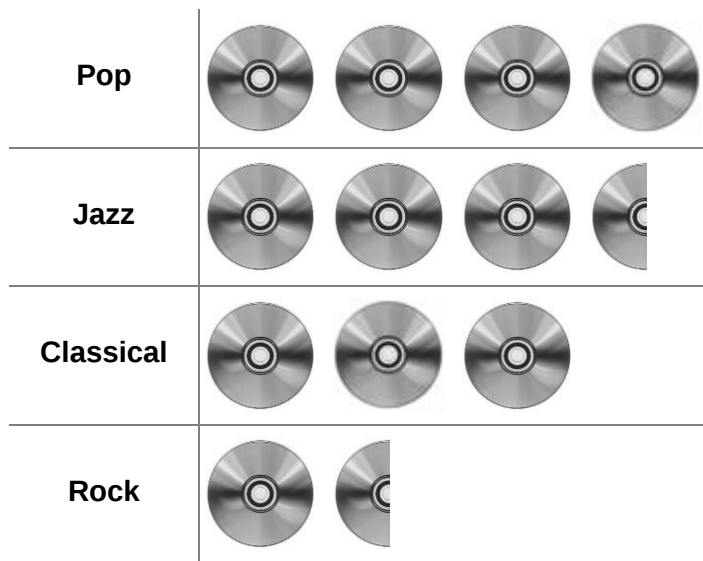
9 (a)

How many CDs do you get for £60?

[3 marks]

Answer _____

- 9 (b)** The pictogram shows some information about CDs.
The key is missing.



The total number of CDs is 48

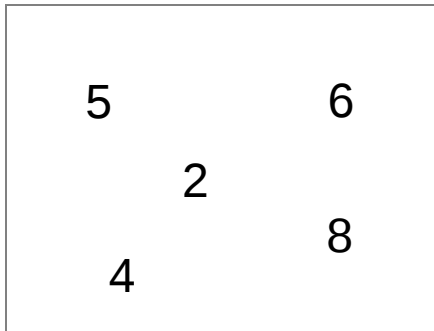
Work out the number of **jazz** CDs.

[4 marks]

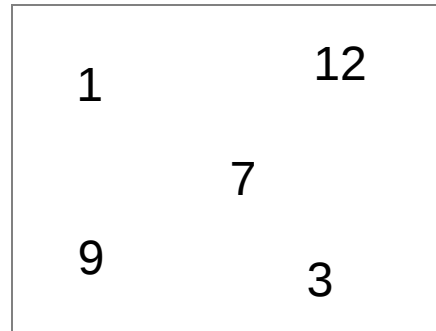
Answer _____

10

Box A



Box B



One of the numbers moves from Box A to Box B.

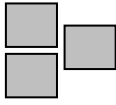
The total of the numbers in Box B is now **two** times the total of the numbers in Box A.

Which number moves?

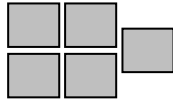
[2 marks]

Answer _____

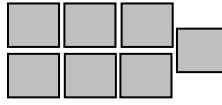
- 11** The diagram shows a sequence of patterns.



Pattern 1



Pattern 2



Pattern 3



Pattern 4

- 11 (a)** Work out the number of shapes in Pattern 5.

[1 mark]

Answer _____

- 11 (b)** Complete the rule below.

[1 mark]

$$\text{Number of rectangles} = \text{Pattern number} \times \boxed{} + \boxed{}$$

- 11 (c)** Which pattern number has 33 rectangles?

[1 mark]

Pattern _____

Turn over for the next question

12

In 2022 gas cost 54p per unit.

A family used 2457 units.

In 2023 gas cost 79p per unit.

The family used 1966 units.

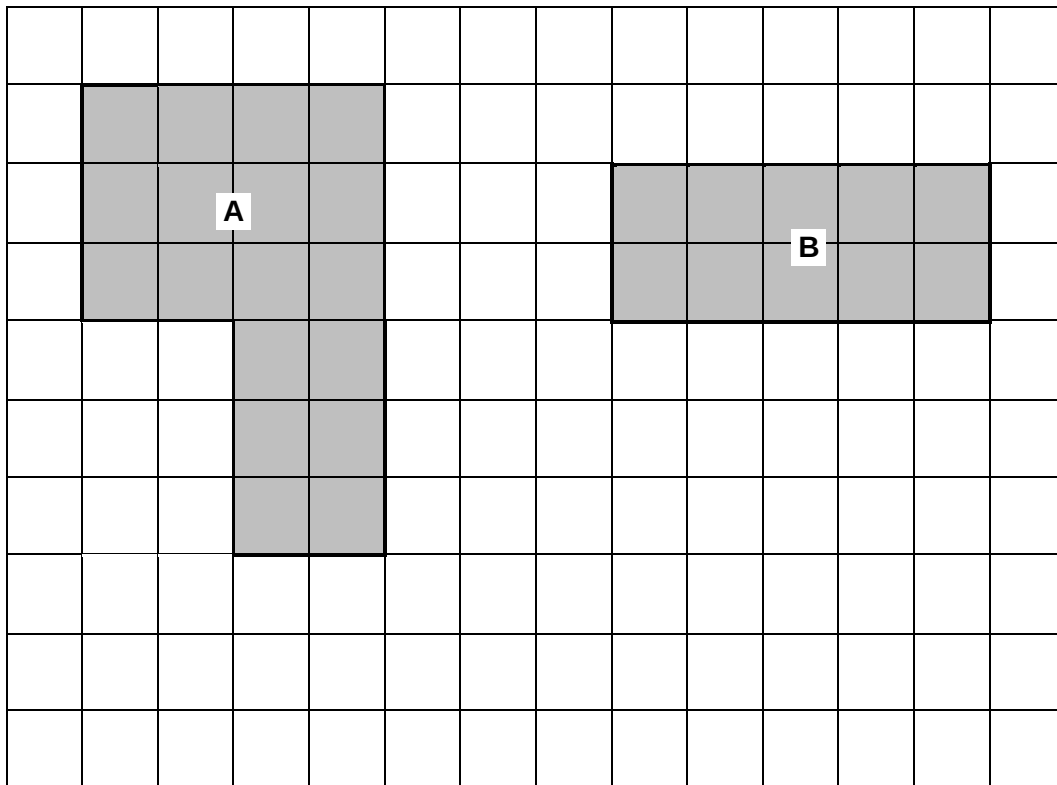
How much **more** did the family pay for gas in 2023?

Give your answer in pounds (£).

[3 marks]

Answer £ _____

13



Work out perimeter of shape A : perimeter of shape B

Give your answer in its simplest form.

[3 marks]

Answer _____

14 Work out 169% of 7800**[2 marks]**

Answer _____

15 You are given that

$$a = 7 \quad \text{and} \quad b = -2$$

Tick whether each statement is true or false.

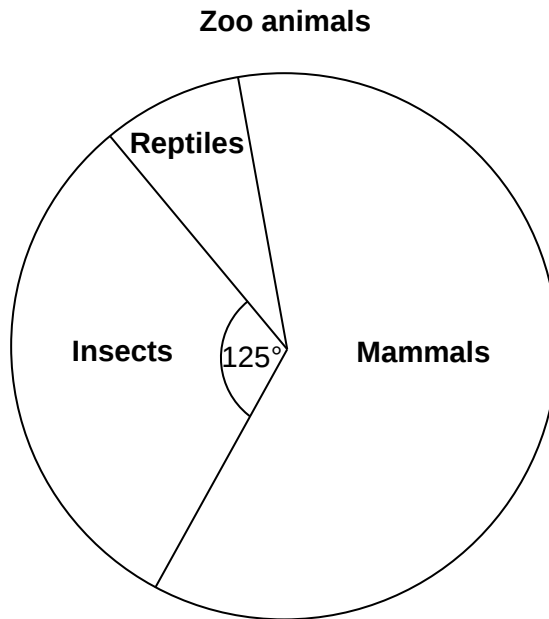
Give a reason for your answer.

[2 marks]

Statement	True	False	Reason
$ab = 14$			
$25b^2 = -100$			

16

The pie chart shows some information about the proportion of animals in a zoo.



The angle for mammals is 175° more than the angle for reptiles.

There are 4680 animals in total.

Work out the number of mammals in the zoo.

[4 marks]

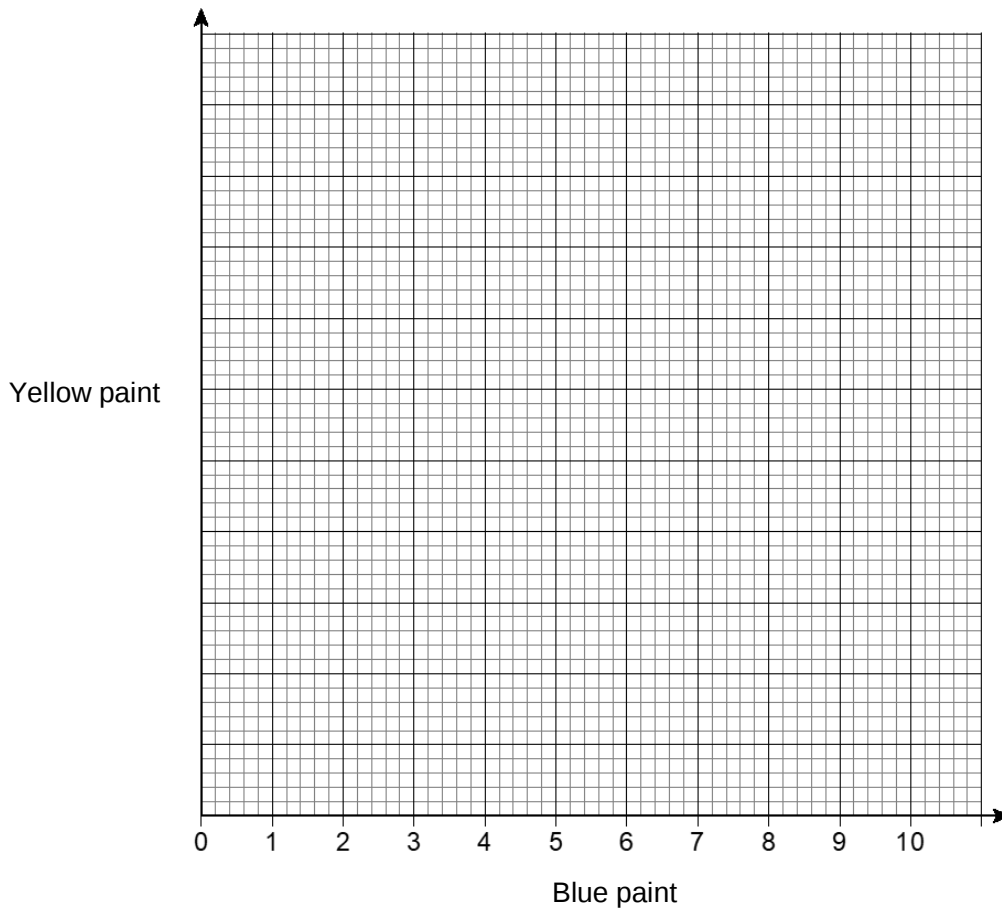
Answer _____

17 Blue paint and yellow paint are mixed together in the ratio 2 : 1

17 (a) Draw a graph that can be used to work out the amount of yellow paint needed given the amount of blue paint.

Your graph **must** show up to 10 litres of blue paint.

[3 marks]



17 (b) How much yellow paint needs to be mixed with 9 litres of blue paint?

[1 mark]

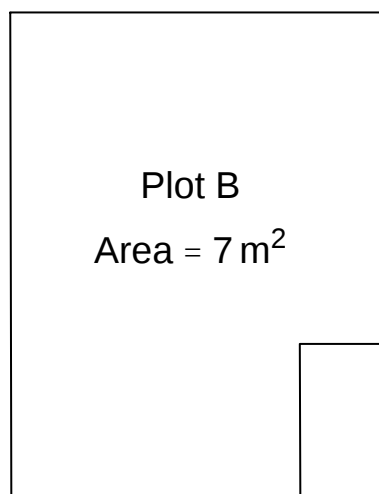
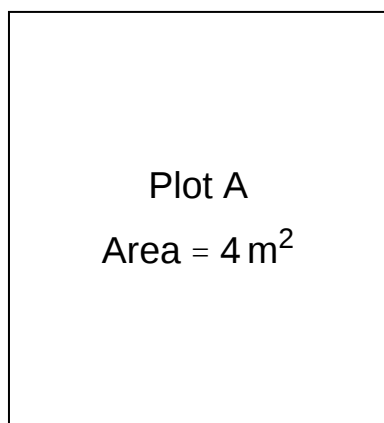
Answer _____ litres

- 18** The perimeter of a triangle is 27 cm.
The length of each side, in cm, is a prime number.
Work out the lengths of the sides of a possible triangle.
- [4 marks]**

Answer _____ cm _____ cm _____ cm

19

An allotment has two planting beds available for vegetables to be sown.



Each carrot needs at least 0.1 m^2 of floor space.

Each cauliflower needs at least 0.6 m^2 of floor space.

Show that the **total** number of vegetables to be grown is larger if:

the cauliflowers are in Plot A

and the carrots are in Plot B.

[4 marks]

20

Work out the next term of this quadratic sequence.

[2 marks]

5

6

9

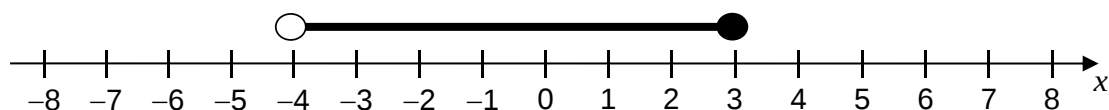
14

Answer _____

21

Circle the inequality shown by the diagram.

[1 mark]



$-4 < x < 3$

$-4 \leq x < 3$

$-4 < x \leq 3$

$-4 \leq x \leq 3$

22 (a) Factorise fully $10a^2 + 25a$

[2 marks]

Answer _____

22 (b) Solve $x^2 + 2x - 15 = 0$

[3 marks]

$x =$ _____

23 In a school, 60% of the students are senior.

45% of the seniors have school meals.

75% of the juniors have school meals.

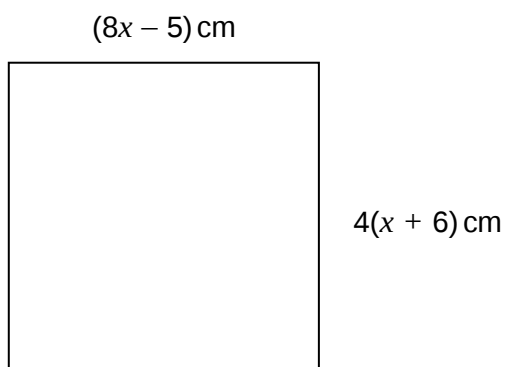
What percentage of the students (seniors and juniors) have school meals?

[3 marks]

Answer _____ %

24

The diagram shows a square.



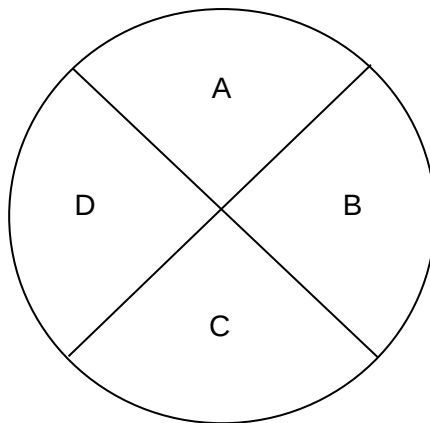
Work out the length of one side of the square.

[4 marks]

Answer _____ cm

Turn over for the next question

25 Here is a fair 4 section spinner.



25 (a) Steven is going to spin the spinner eight times.

He says,

“I will get two of each letter.”

Give a reason why he could be wrong.

[1 mark]

25 (b) Charlotte spins the spinner 50 times.

Her results are shown below.

Letter	A	B	C	D
Frequency	20	13	10	7

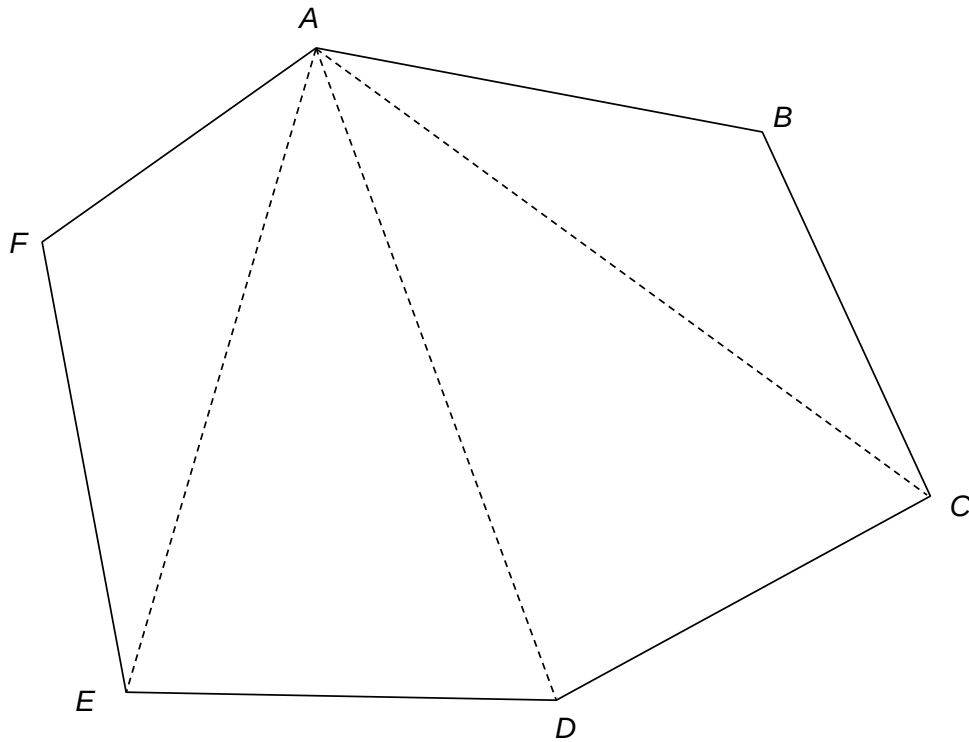
Work out the relative frequency of not spinning a vowel.

[2 marks]

Answer _____

26

Polygon $ABCDEF$ is divided into triangles as shown.



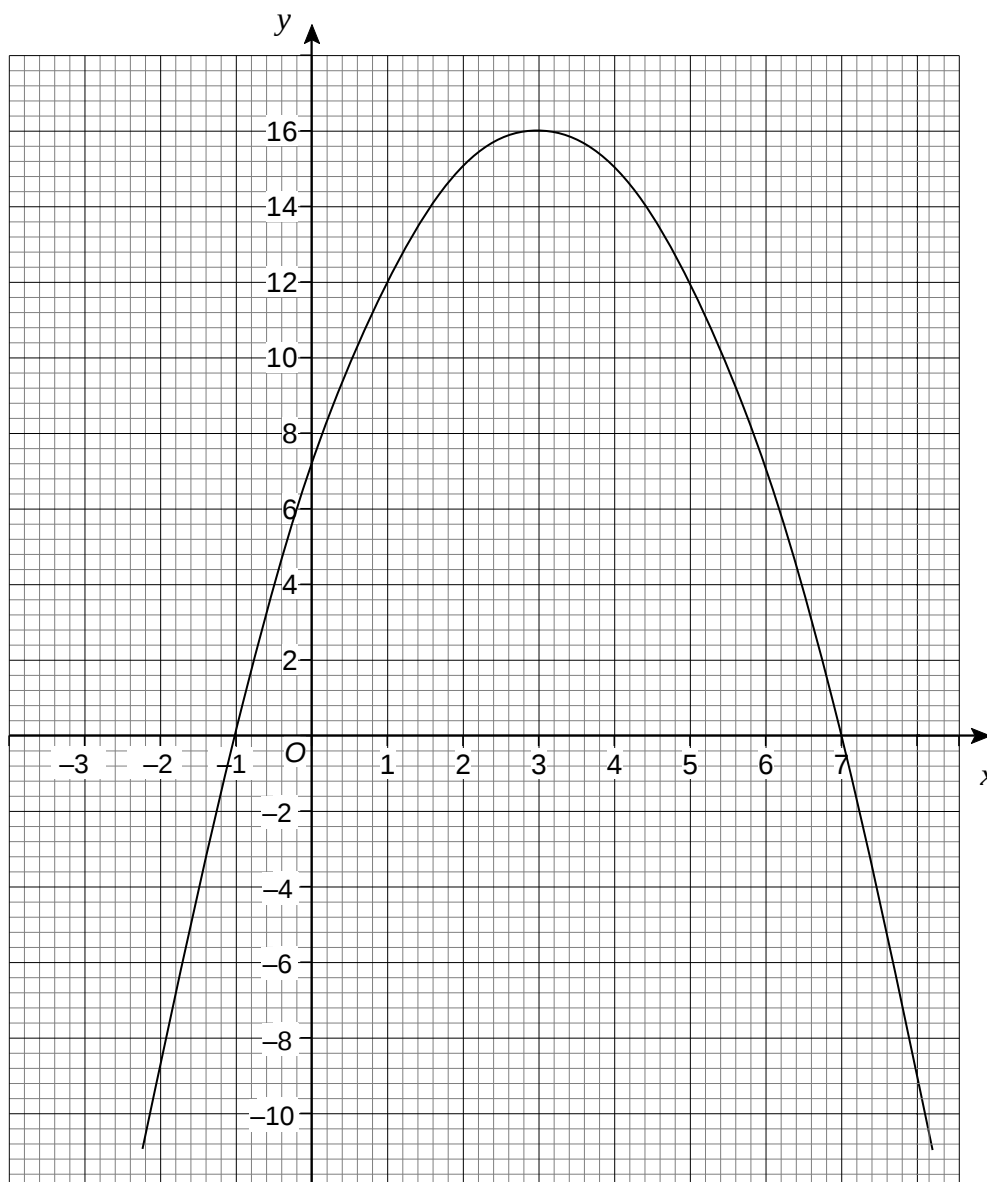
Use the triangles to work out the sum of the interior angles of polygon $ABCDEF$.

You **must** show your working.

[2 marks]

Answer _____ °

27 The graph $y = a + bx - x^2$ is shown.



27 (a) Write down the coordinates of the turning point of the curve.

[1 mark]

Answer (_____ , _____)

27 (b) Write down the value of a

[1 mark]

$a =$ _____

27 (c) Circle the two roots of $a + bx - x^2 = 0$

[1 mark]

–1 and 7

1 and –7

1 and 7

–1 and –7

28 Fatimah and four other women threw javelins in a competition.
The distances, in metres, of the four other women are shown.

15.2

15.9

16.1

16.8

The mean distance for **all** five women was 16.04 metres.

Did Fatimah throw the javelin the furthest?

You **must** show your working.

[3 marks]

Yes

☐

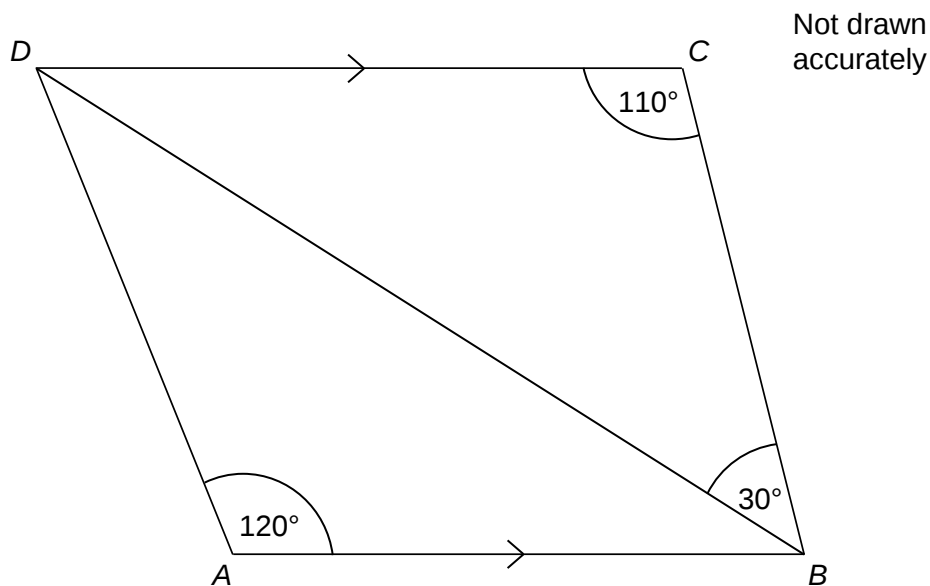
No

☐

Turn over for the next question

29

In the diagram below, DC is parallel to AB .



Show that triangle ABD is scalene.

[3 marks]

END OF QUESTIONS

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