A

Surname _____

Forename(s) _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

Functional Skills Level 2
MATHEMATICS

Paper 2 Calculator

8362/2

Thursday 3 November 2022 Afternoon

Time allowed: 1 hour 30 minutes

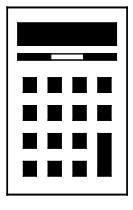
At the top of the page, write your surname and forename(s), your centre number, your candidate number and add your signature.

[Turn over]

NOV228362201

MATERIALS

For this paper you must have:



- **a calculator**
- **mathematical instruments.**

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 on blank pages.**
- **If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).**
- **Do all rough work in this book. Cross through any work you do not want to be marked.**

- **State the units of your answer where appropriate.**

INFORMATION

- **The marks for questions are shown in brackets.**
- **The maximum mark for this paper is 60.**
- **You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.**
- **If your calculator does not have a π button, take the value of π to be 3.142**

ADVICE

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

DO NOT TURN OVER UNTIL TOLD TO DO SO

SECTION A

Answer ALL questions in the spaces provided.

1 Circle the integer. [1 mark]

0.5 $\frac{1}{8}$ 7 –10.2

2 Write 9 507 211 in words.

[1 mark]

Answer _____

_____

_____

_____

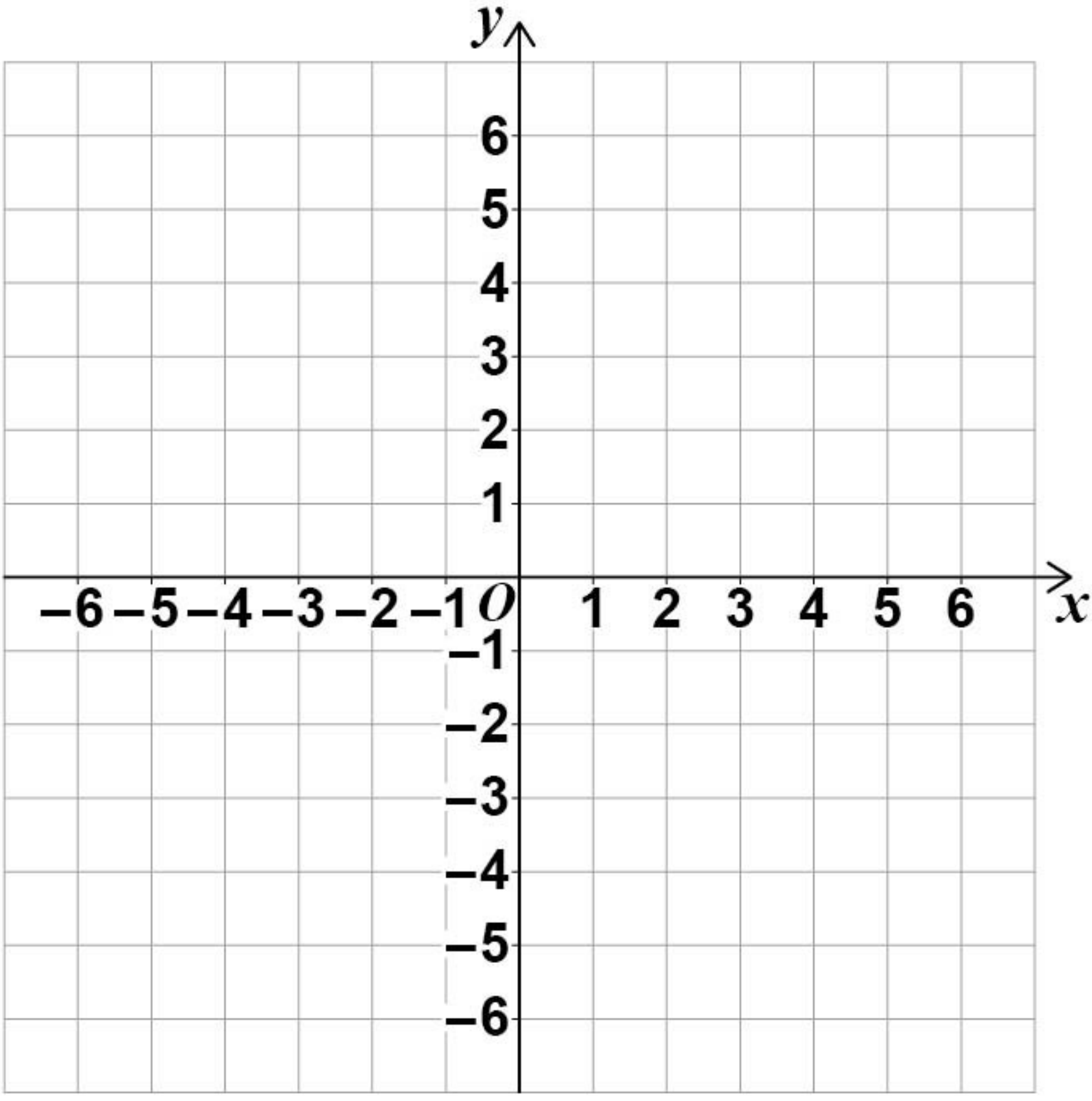
3 Work out 3 years to 9 months as a ratio.

Give your answer in its simplest form. [2 marks]

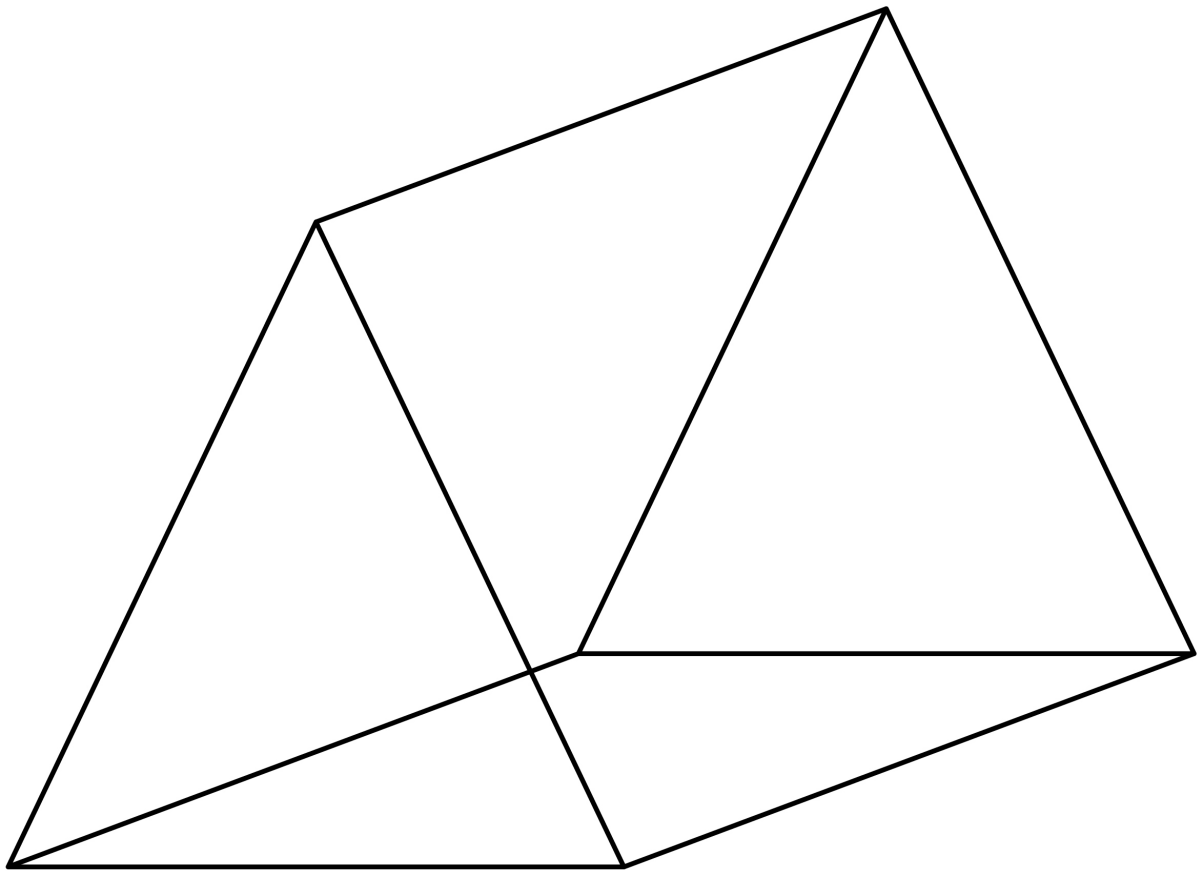
Answer _____ : _____

4 On the grid, plot and label the points *X*, *Y* and *Z*. [2 marks]

X = (3, 5) *Y* = (5, –3) *Z* = (–3, –5)



5 **Write the mathematical name of this solid shape. [1 mark]**



Answer _____

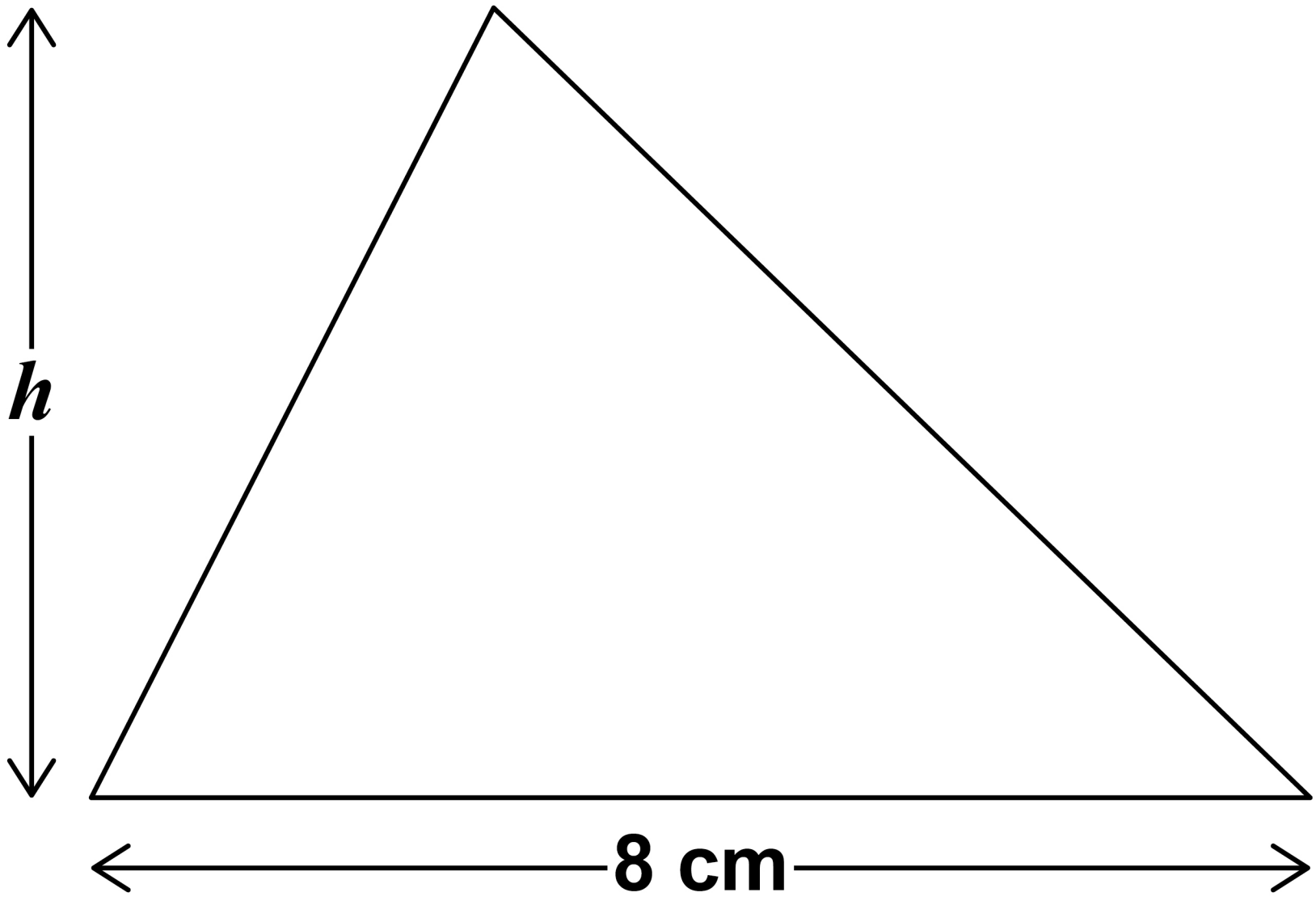
6 Calculate $2\frac{1}{5} + 1\frac{3}{4}$ [1 mark]

Answer _____

7 A triangle, on the opposite page, has an area of 20 cm^2

The base of the triangle is 8 cm

The diagram is not drawn accurately.



Work out the perpendicular height, h, of the triangle. [2 marks]

Answer _____ cm

8 Calculate $2(7 + 3k)$ when $k = -1.8$
[2 marks]

Answer

12

SECTION B

Answer ALL questions in the spaces provided.

9 LORRY DRIVING

Asha is a lorry driver.

[Turn over]

9 (a) Asha drives from Southampton to Leeds.

The journey

is 380 kilometres

takes 5 hours and 30 minutes.

The graph can be used to convert between miles and kilometres.

Asha works out that his average speed is OVER 40 mph

Is he correct?

You MUST show your working.
[4 marks]

9 (b) The amount Asha is paid each week is calculated using the formula

$$P = 0.73(0.14d + 65n)$$

where

P = pay in pounds

d = distance driven in kilometres that week

n = number of days worked that week

Last week Asha worked for 5 days.

His pay for last week's work was £605.17

How many kilometres did Asha drive last week? [4 marks]

Answer _____ **kilometres**

[Turn over]

8

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10 FUNDRAISING

Carol is fundraising for a sports club.

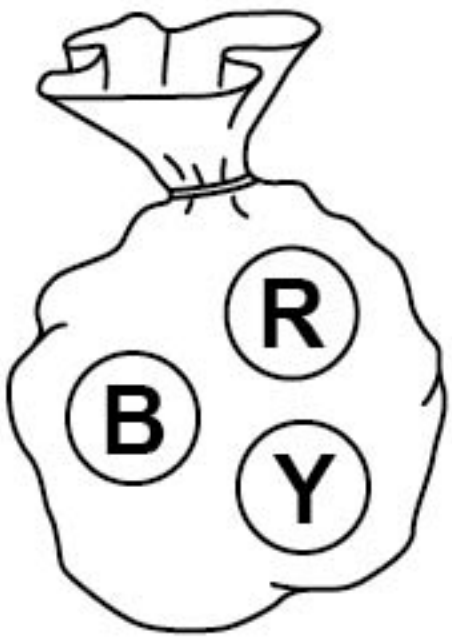
[Turn over]

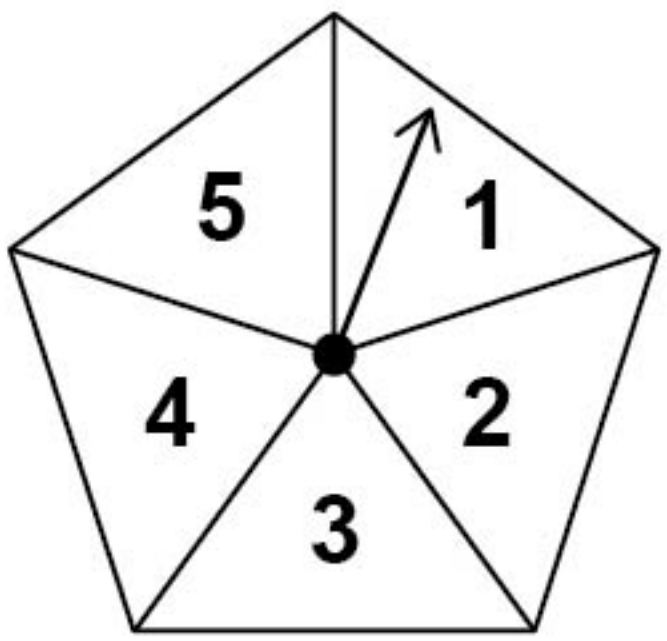
10 (a) Carol designs a game.

The game uses

a bag containing a red ball, a blue ball and a yellow ball

a fair, 5-sided spinner.





The player

picks a ball at random from the bag

and

spins the spinner.

The player wins if they pick the RED ball and the spinner lands on an EVEN number.

Carol says,

“The chance of winning is MORE THAN 10%”

Is she correct?

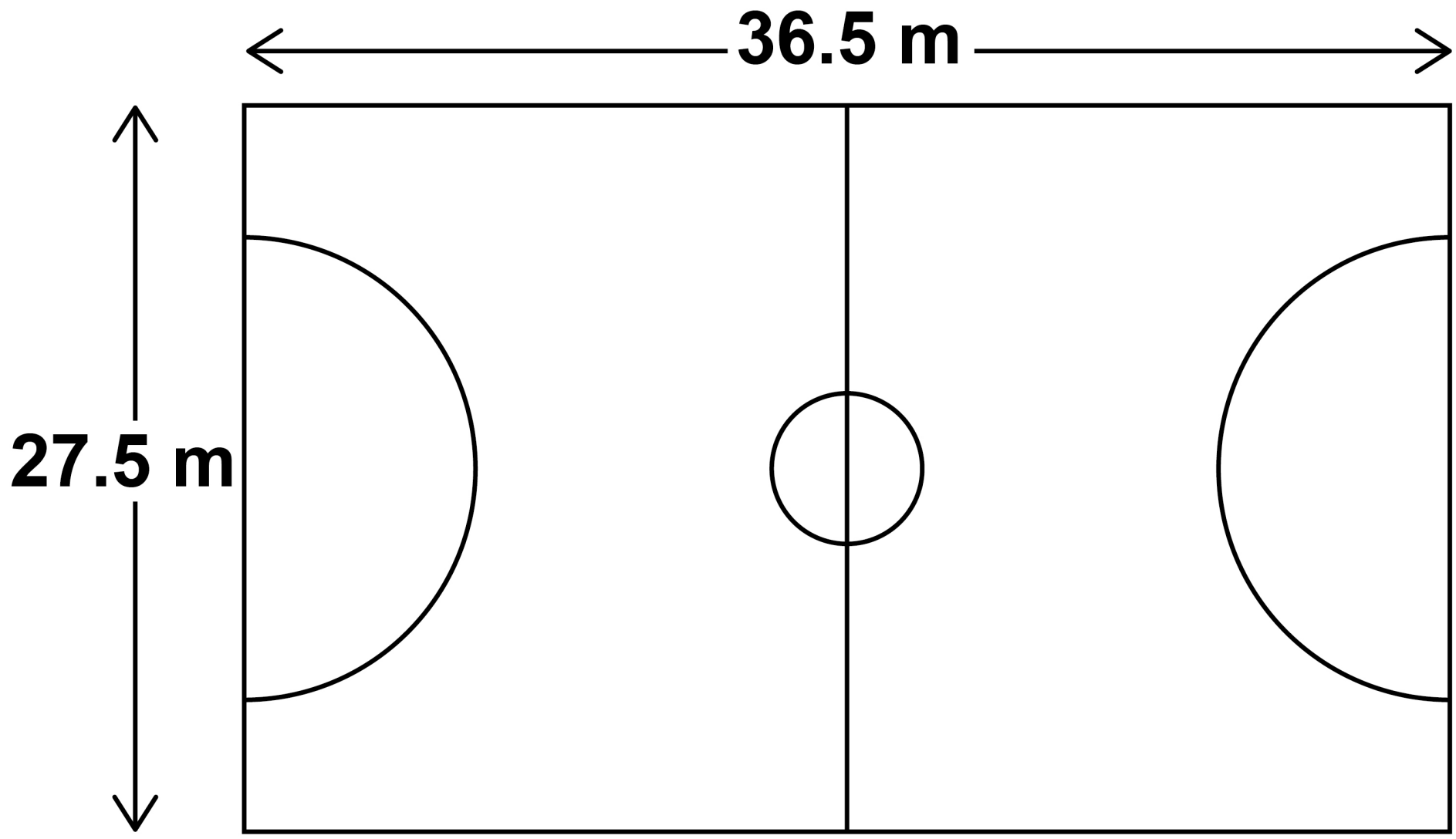
You MUST show your working. [4 marks]

10 (b) The club wants to use some of the money to paint the lines on a mini football pitch.

The lines to be painted are

- the four sides of a rectangle measuring 27.5 m by 36.5 m
- a halfway line measuring 27.5 m
- a centre circle with a radius of 1.5 m
- two semicircles, each with a radius of 8 m

The diagram is not drawn accurately.



It costs £3.25 per metre to paint the lines.

In total, how much will it cost to paint all the lines? [6 marks]

Answer £ _____

BLANK PAGE

[Turn over]

10 (c) After painting the lines the club has £8225

They invest $\frac{2}{7}$ of this money in a bank account for 4 years.

The account pays compound interest at 3% per year.

Is the investment worth MORE THAN £2700 at the end of the 4 years?

You MUST show your working.
[4 marks]

[Turn over]

14

11 ICE CREAM

Suzi has an ice cream van.

11 (a) Suzi buys tubs of ice cream and sells scoops of ice cream.

Each scoop is in the shape of a sphere with radius 2.8 cm

volume of sphere $= \frac{4}{3}\pi r^3$

r **= radius of sphere**

Suzi buys 5-litre tubs.

1 litre = 1000 cm^3

Suzi wants to buy enough tubs to sell at least 200 scoops.

Work out how many tubs Suzi should buy.

You MUST show your working.
[5 marks]

Answer

11 (b) Suzi uses a 15% discount voucher when she buys the tubs of ice cream.

She pays £76.50 after the discount.

Suzi says,

"I save LESS THAN £14 by using the discount voucher."

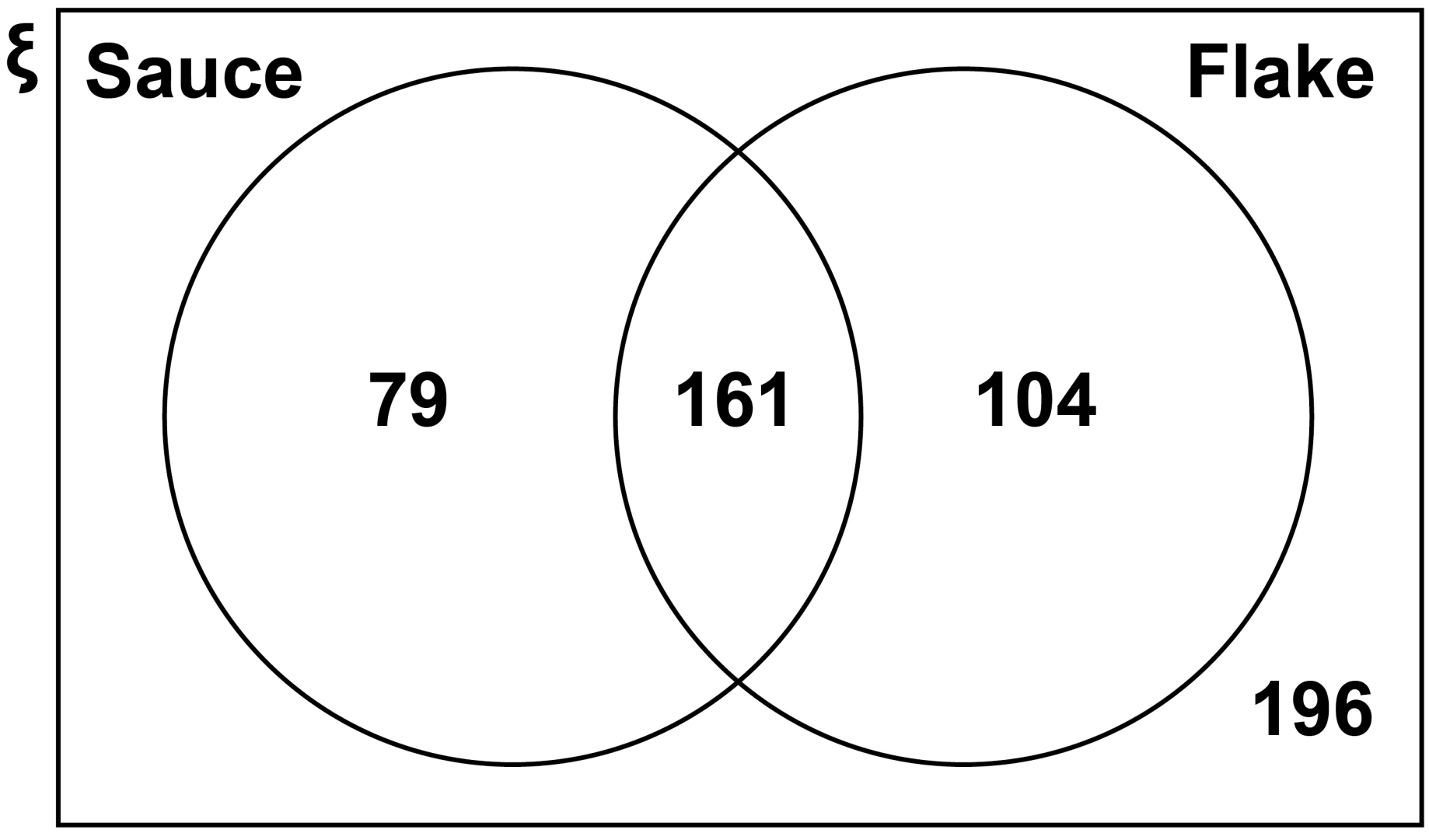
Show working to support this statement. [3 marks]

[Turn over]

11 (c) Suzi sells two ice cream toppings, sauce and flake.

She hopes that the probability that a customer, picked at random, buys AT LEAST ONE topping will be more than $\frac{7}{10}$

The Venn diagram shows what toppings the customers buy over one weekend.



Over this weekend, does Suzi achieve the probability she hopes to get?

You MUST show your working.
[3 marks]

[Turn over]

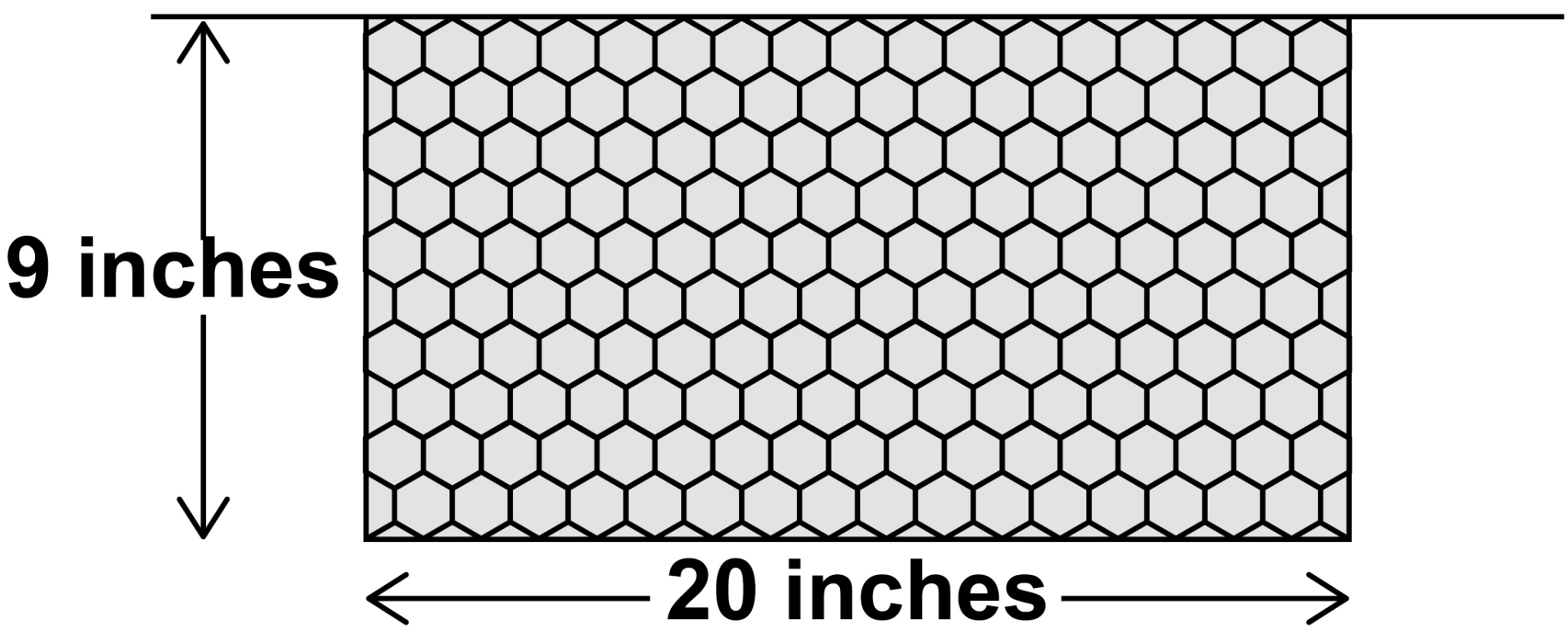
12 BEES

Mary keeps bees and sells the honey they produce.

12 (a) The bees live in a beehive.

Mary's beehive holds rectangular frames full of honeycomb.

The diagram is not drawn accurately.



Each frame measures 9 inches by 20 inches.

The beehive holds 8 frames.

Mary cuts the honeycomb into rectangular pieces measuring 11 cm by 7.5 cm

Work out the maximum number of pieces that Mary can get from her BEEHIVE.

Use 1 inch = 2.5 cm [5 marks]

Answer

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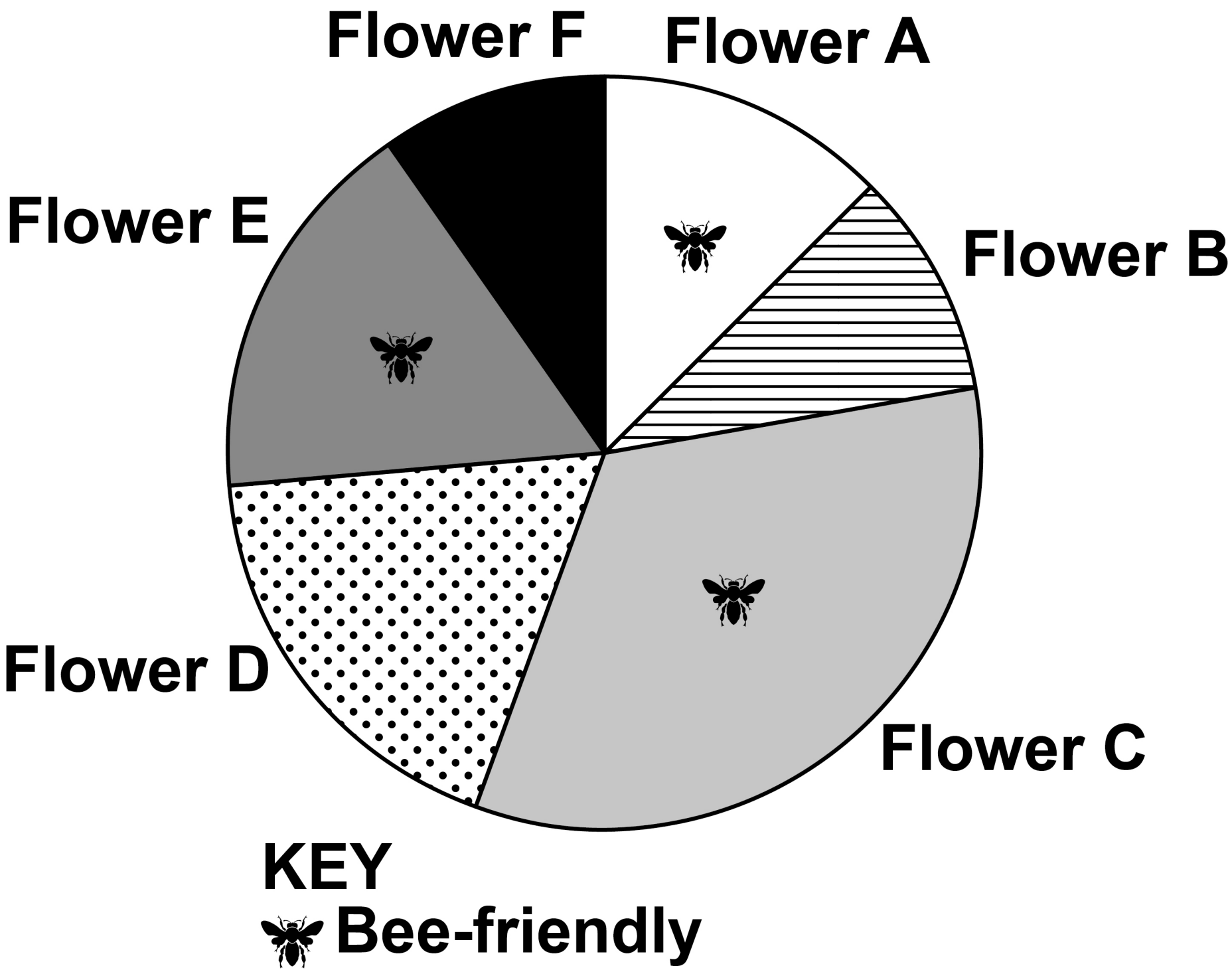
[Turn over]

12 (b) **Mary wants to grow some bee-friendly flowers.**

She finds information about the different flowers produced from two packets of seeds.

PACKET 1



Two thirds of the seeds in PACKET 2 produce bee-friendly flowers.

Mary wants to buy the packet producing the greater proportion of bee-friendly flowers.

Which packet should she buy?

You MUST show your working.
[4 marks]

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[Turn over]

12 (c) Here are the instructions for planting flower seeds.

Use 4 grams of seed per square metre of garden.

Mix the seeds with sand in the ratio

mass of seed : mass of sand = 2 : 5

Mary measures her neighbours' gardens to work out the average-sized garden.

GARDEN (m^2)	FREQUENCY	MIDPOINT	
$0 < \text{area} \leqslant 10$	2		
$10 < \text{area} \leqslant 20$	8		
$20 < \text{area} \leqslant 30$	12		
$30 < \text{area} \leqslant 40$	3		

40

Estimate the total mass of seed and sand mix needed to cover an average-sized garden.
[6 marks]

Answer _____ **grams**

15

END OF QUESTIONS

Additional page, if required.

Write the question numbers in the left-hand margin.

Additional page, if required.

Write the question numbers in the left-hand margin.

Additional page, if required.

Write the question numbers in the left-hand margin.

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For Examiner's Use	
Question	Mark
1–8	
9	
10	
11	
12	
TOTAL	