AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

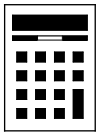
Functional Skills Level 2
MATHEMATICS

Paper 2 Calculator

Thursday 3 November 2022 Afternoon Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.



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

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.
- 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 write outside the box

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]

_____

_____

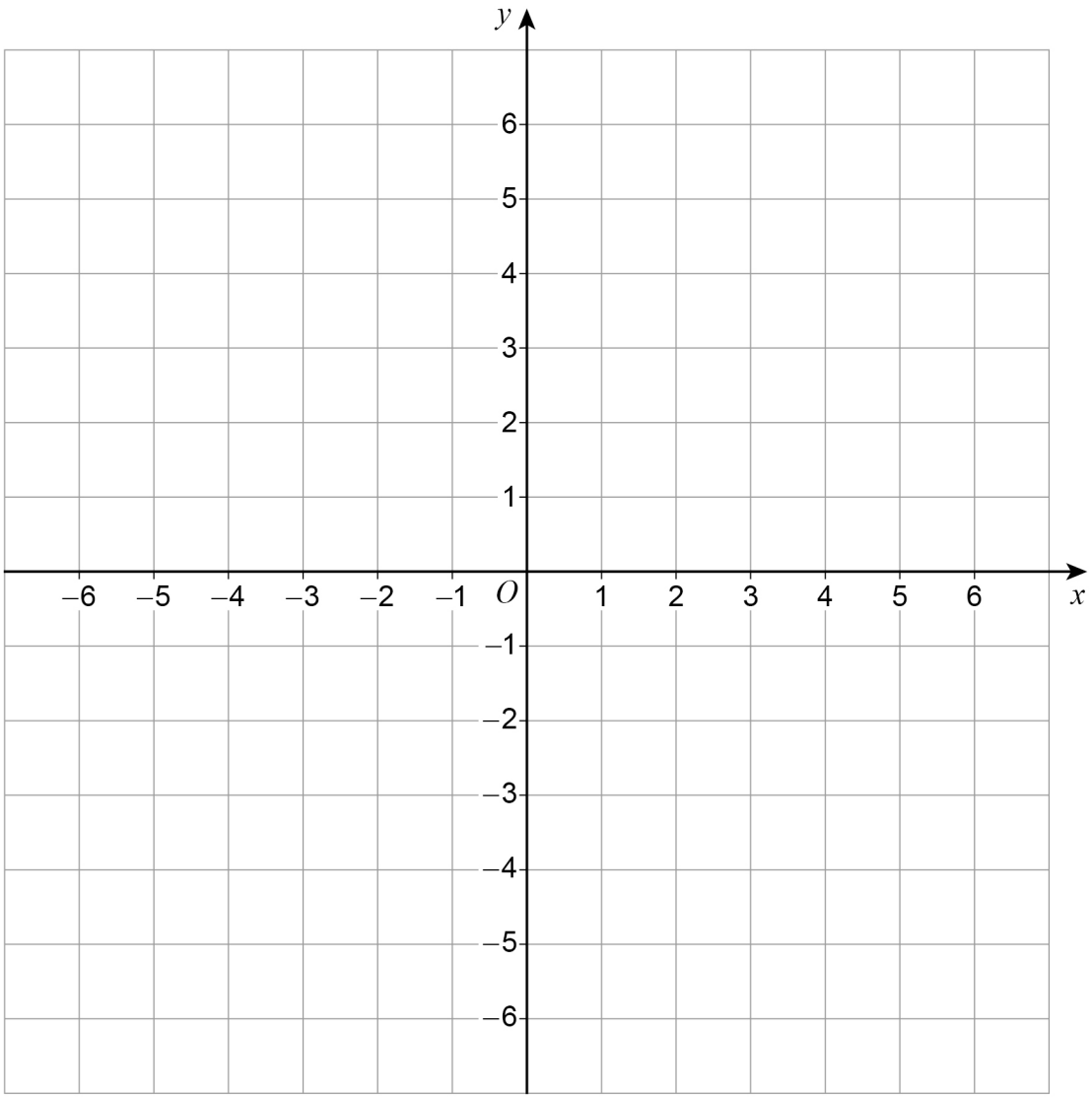
Answer _____ : _____

Do not write outside the box

4 On the grid, plot and label the points X, Y and Z.

[2 marks]

$X = (3, 5)$ $Y = (5, -3)$ $Z = (-3, -5)$

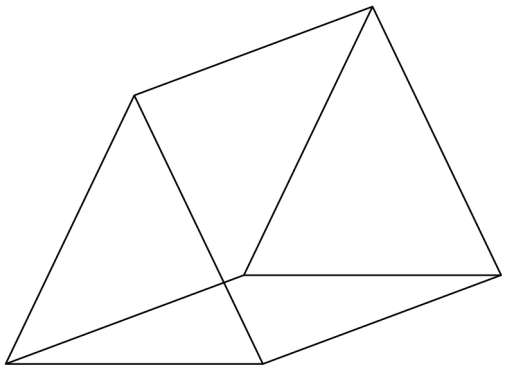


Turn over for the next question

Do not write outside the box

5 Write the mathematical name of this solid shape.

[1 mark]



Answer _____

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

[1 mark]

_____

_____

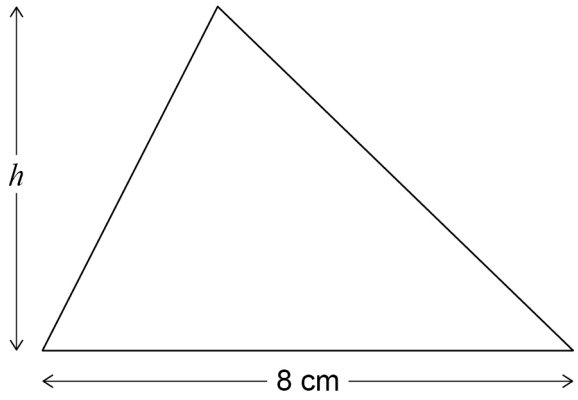
Answer _____

Do not write outside the box

7 A triangle has an area of 20 cm^2

The base of the triangle is 8 cm

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

Turn over ►

Do not write outside the box

Section B

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

9 **Lorry driving**

Asha is a lorry driver.

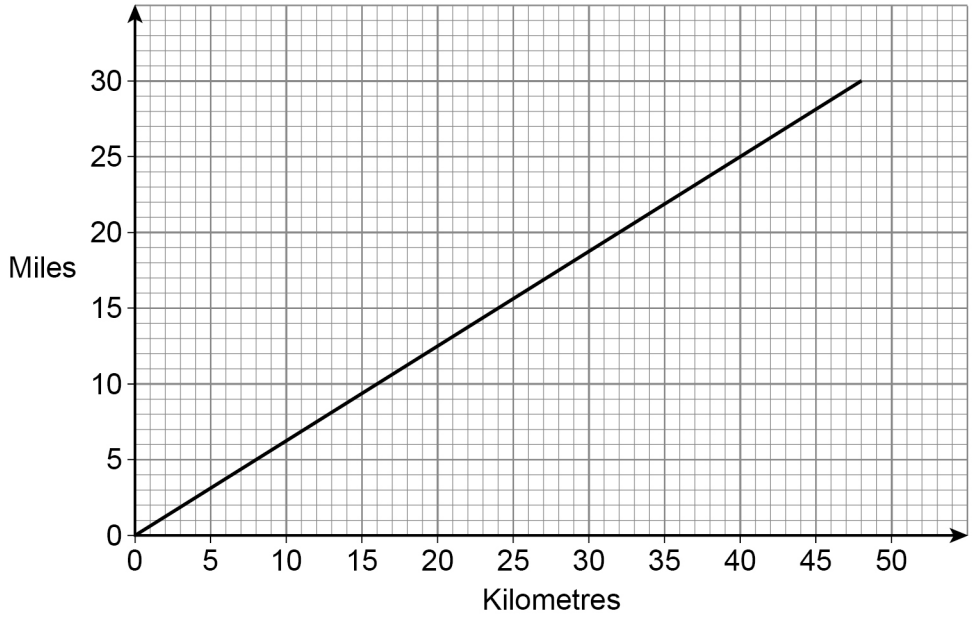
9 (a) Asha drives from Southampton to Leeds.

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]

Do not write outside the box

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

8

Turn over for the next question

Do not write outside the box

10 Fundraising

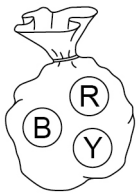
Carol is fundraising for a sports club.

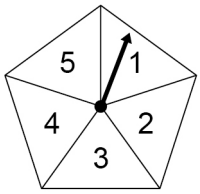
10 (a) Carol designs a game.

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]

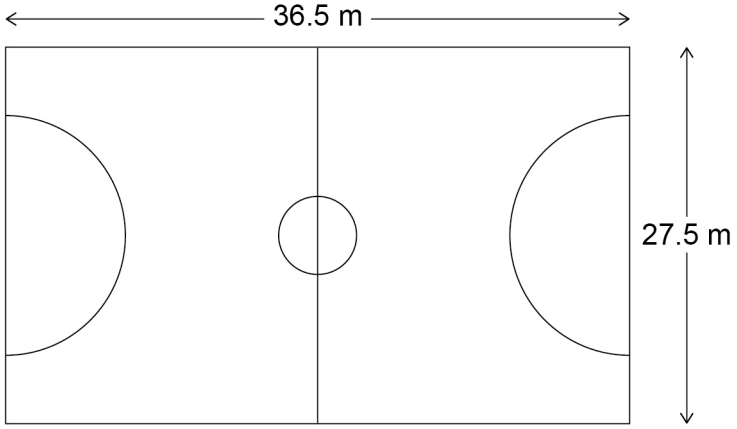
Do not write outside the box

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

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 £ _____

Turn over ►

Do not write outside the box

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]

14

Do not write outside the box

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

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

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 _____

Question 11 continues on the next page

Do not write outside the box

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.

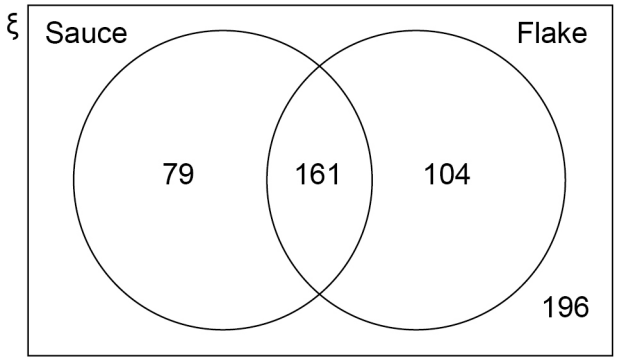
[3 marks]

Do not write outside the box

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]

11

Turn over for the next question

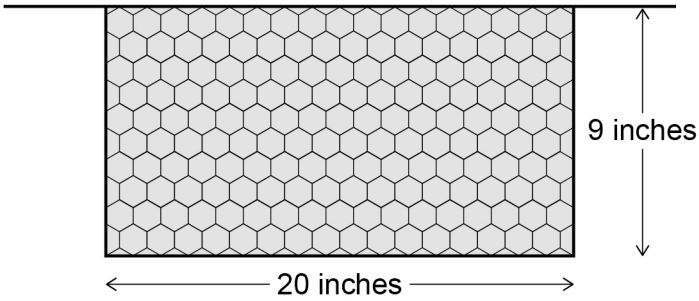
Do not write outside the box

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.



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]

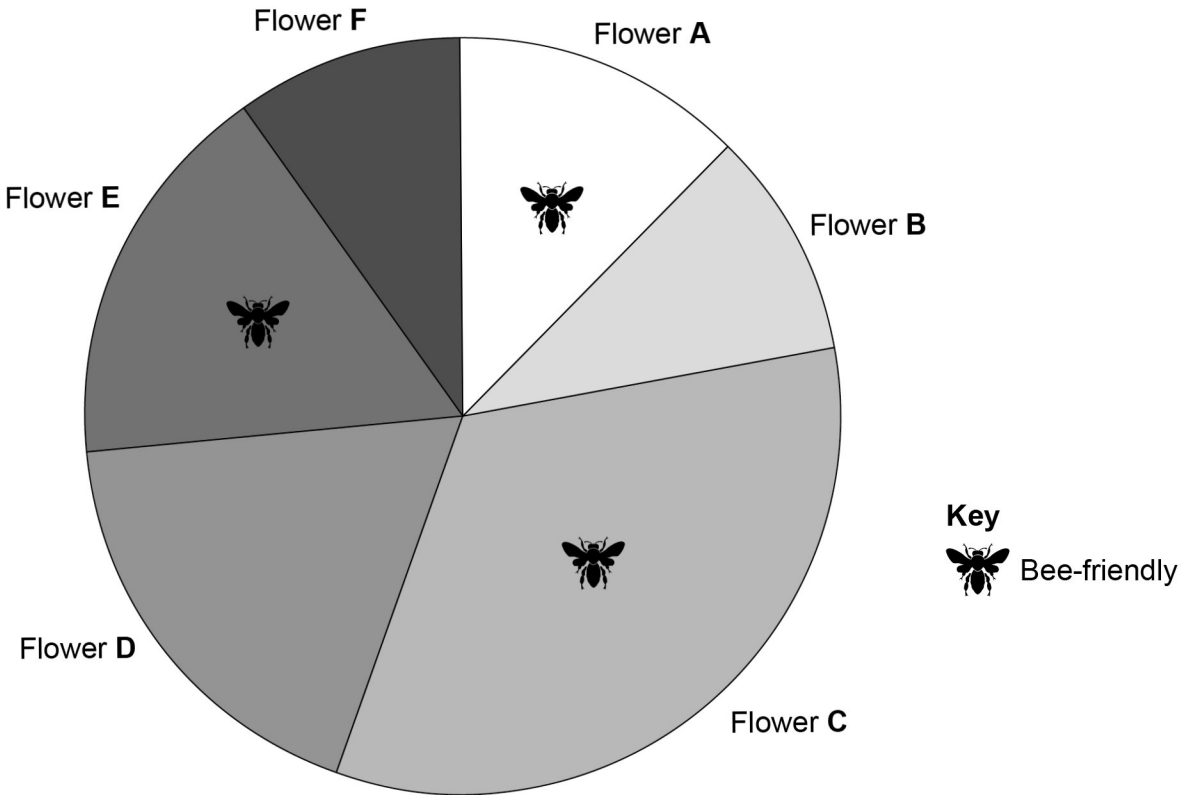
Answer _____

Do not write outside the box

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]

Do not write outside the box

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		

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

[6 marks]

Answer _____ grams

15

END OF QUESTIONS

Do not write outside the box

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

Do not write outside the box

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

Do not write outside the box

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**