

Name



Key Stage Two

Mathematics

SATS Practice Papers

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Pack Three

Key Stage Two Mathematics



Set A Paper 1: Arithmetic

Calculator Not Allowed
30 minutes

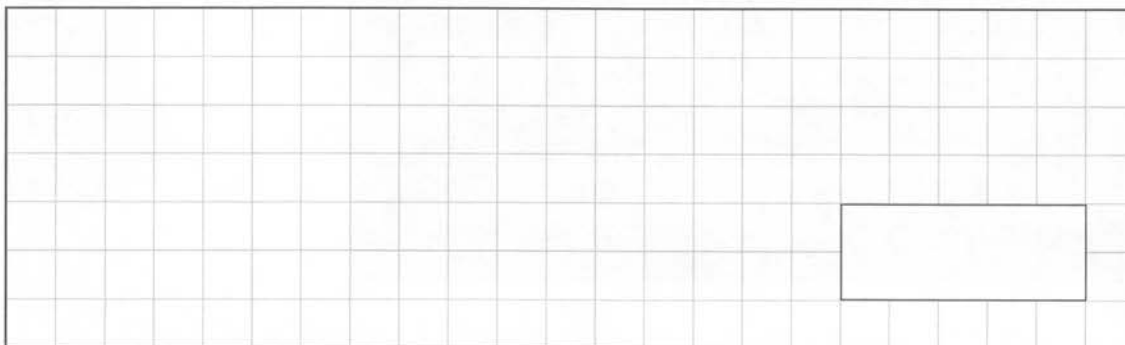
First name						
Middle name						
Last name						
School						
Date of birth	Day		Month		Year	

Total marks

--

1

$489 \times 1 =$



1 mark

2

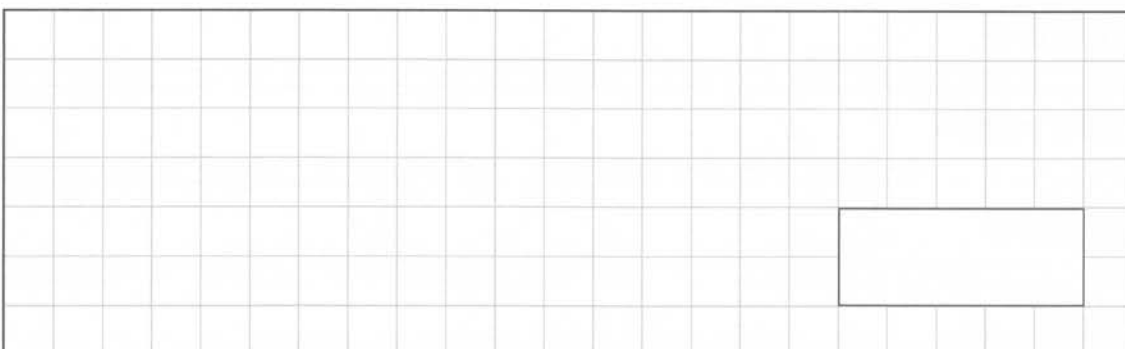
$2253 + 1000 =$



1 mark

3

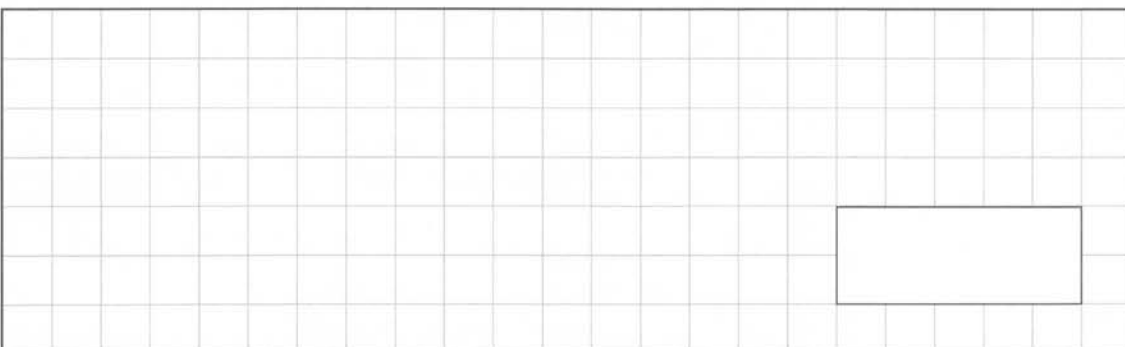
$146 + 75 =$



1 mark

4

$56 \div 8 =$



1 mark

5

$$\boxed{} = 32 \times 3$$

1 mark

6

$$\boxed{} = 365 - 8$$

1 mark

7

$$2 \times 3 \times 9 =$$

1 mark

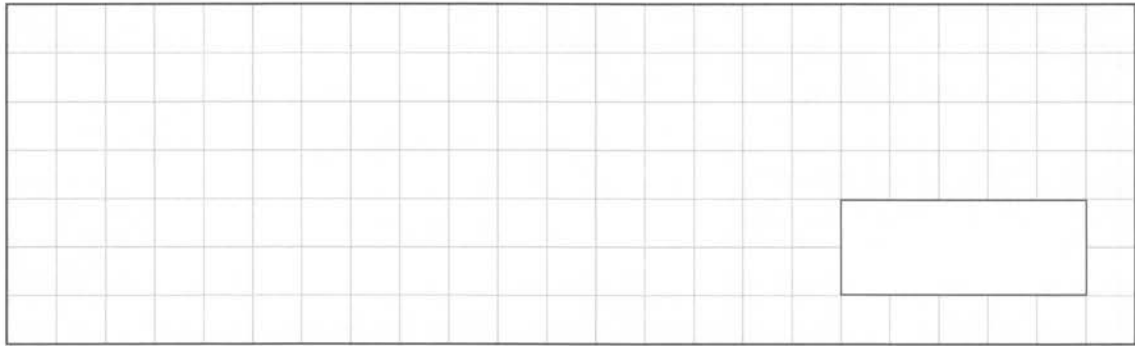
8

$$-7 + 10 =$$

1 mark

9

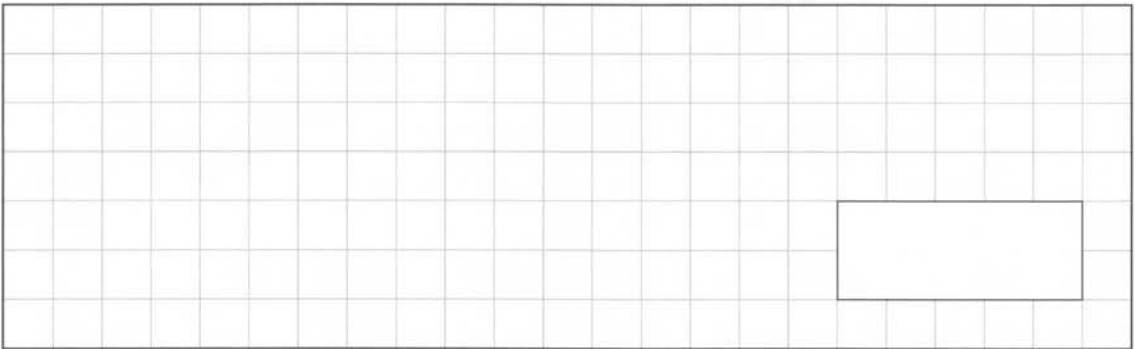
$7.5 - 0.4 =$



1 mark

10

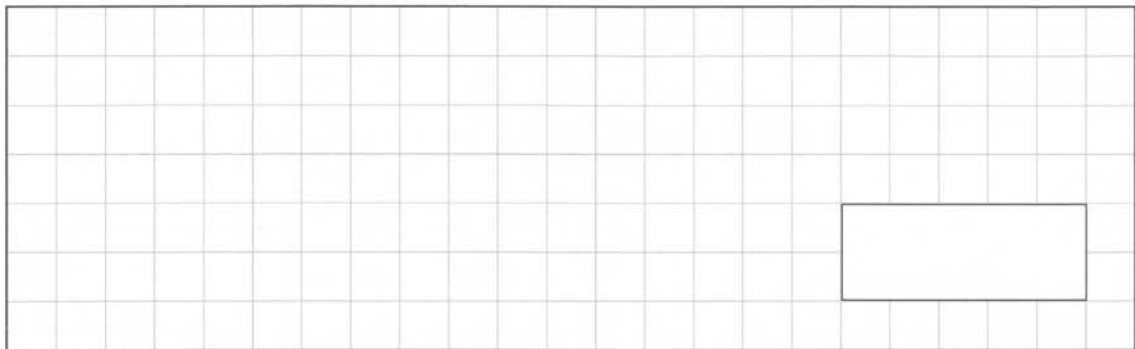
$49\,992 + 6842 =$



1 mark

11

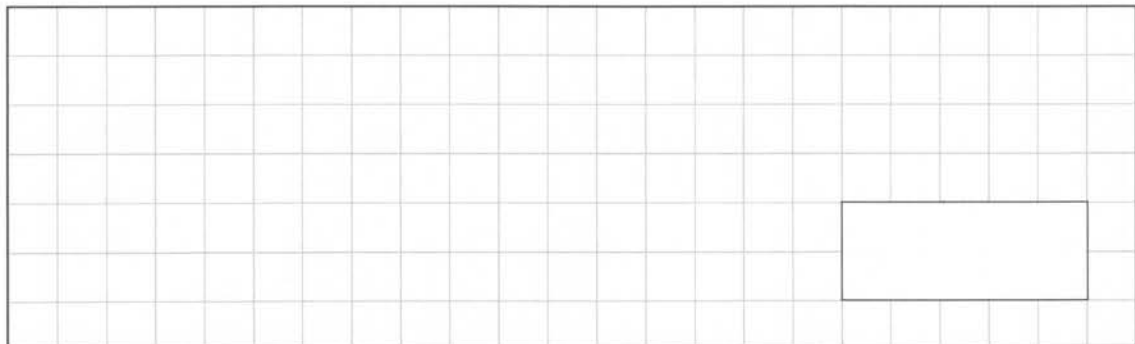
$3.2 + 0.03 =$



1 mark

12

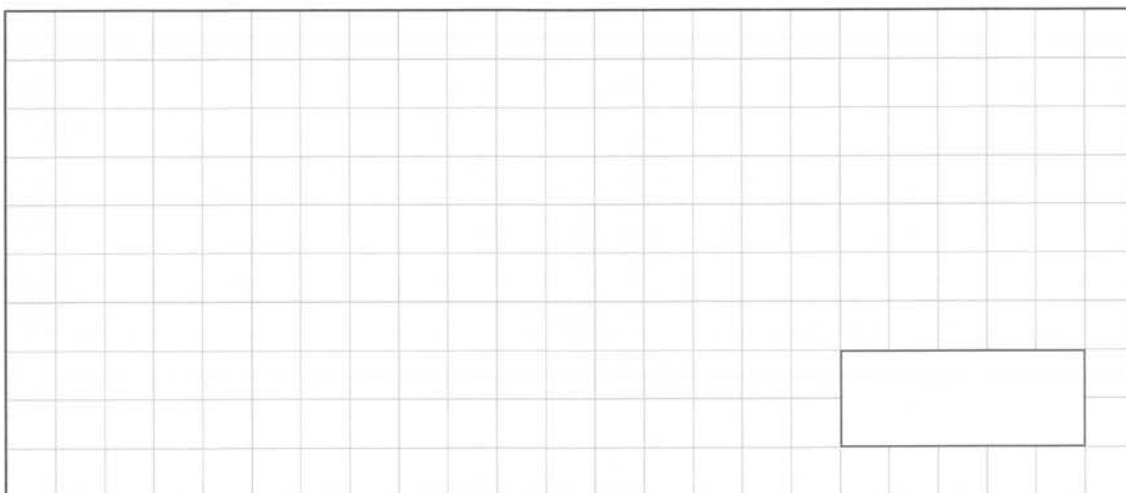
$1000 \times 13 =$



1 mark

13


$$16\,000 - 80 =$$



1 mark

14

$$17.26 \times 10 =$$



1 mark

15

$$917 \times 6 =$$



1 mark

16

$$\frac{8}{13} - \frac{5}{13} =$$

1 mark

17

$$38\,467 - 4623 =$$

1 mark

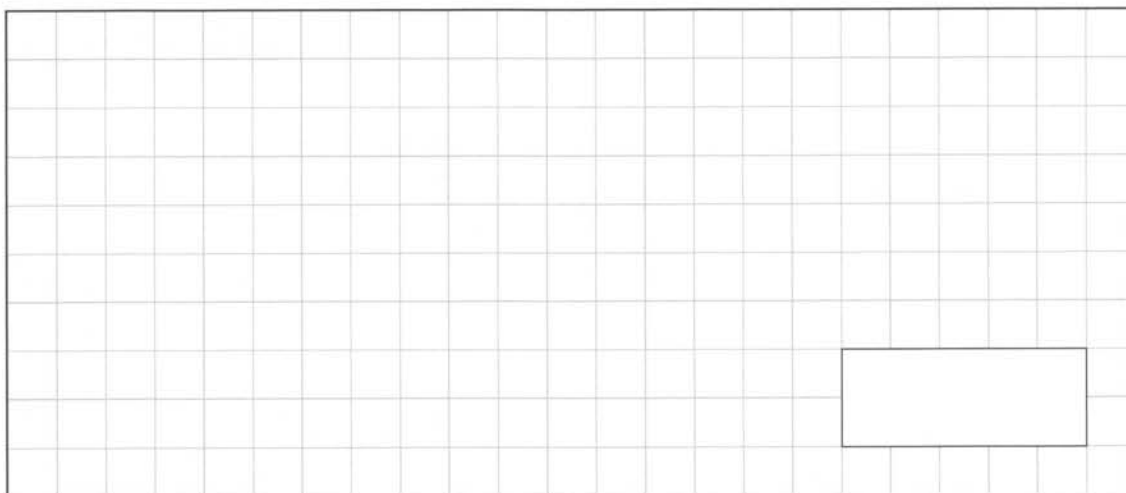
18

$$19.006 + 12.28 =$$

1 mark

19

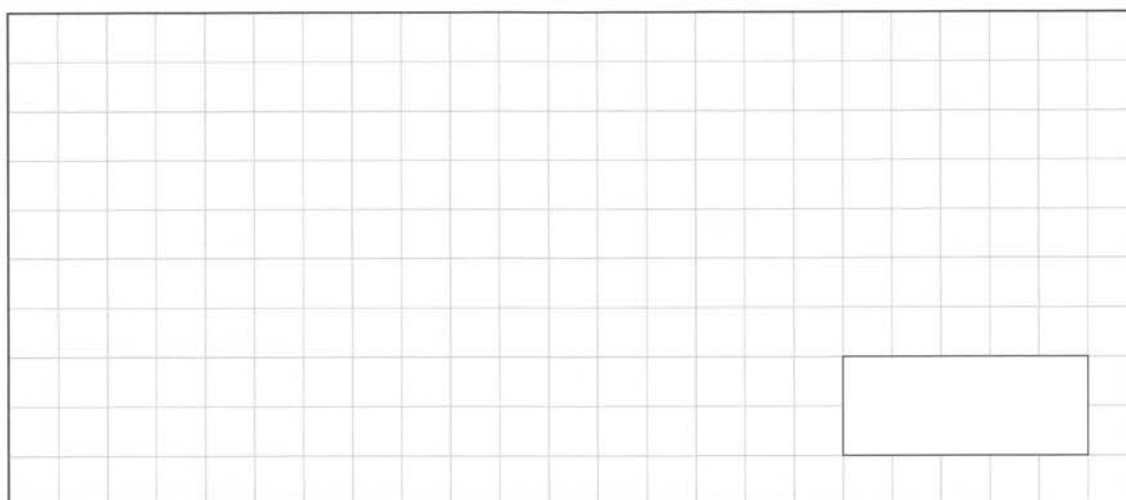
$$9288 \div 9 =$$



1 mark

20


$$0.3 \div 10 =$$



1 mark

21

$$5^2 - 3^2 =$$



1 mark

22

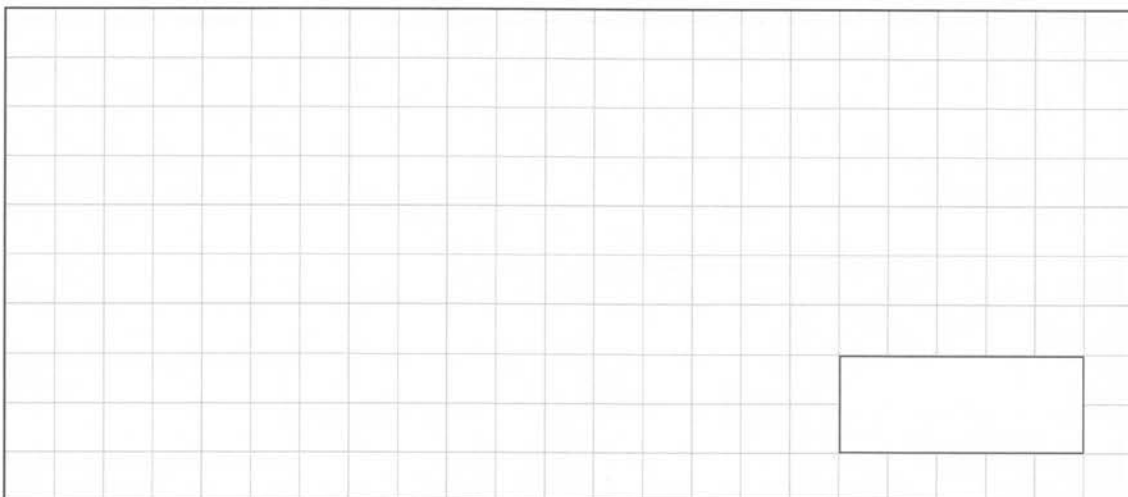
$1080 \div 12 =$



1 mark

23

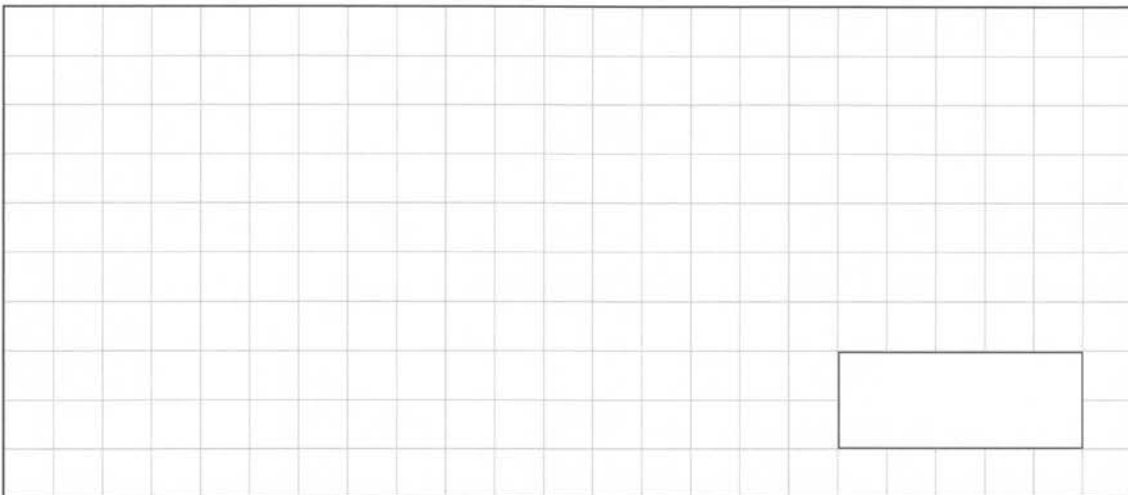
$30\% \times 400 =$



1 mark

24

$\frac{4}{5} \text{ of } 125 =$



1 mark

25

$$\begin{array}{r} 85 \\ \times 28 \\ \hline \end{array}$$

Show
your
working

2 marks

26

$$22.6 - 4.67 =$$

1 mark

27

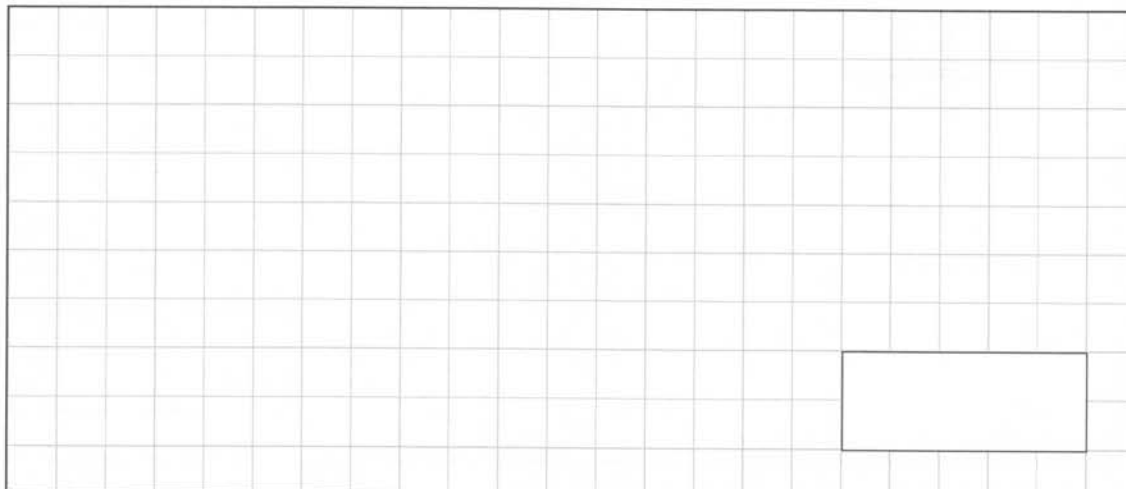
$$14 \overline{)4802}$$

Show
your
working

2 marks

28

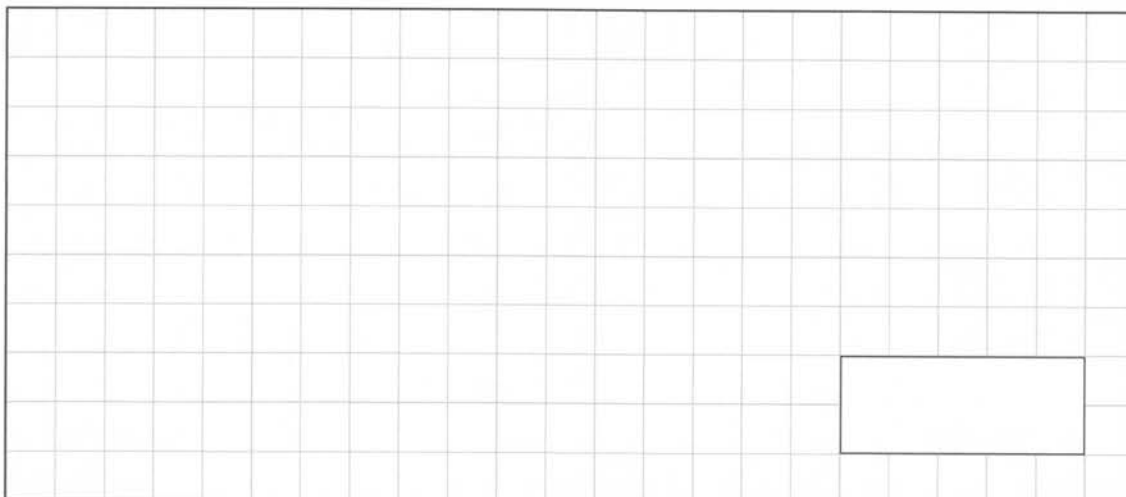
$$7 \times (37 - 29) =$$



1 mark

29

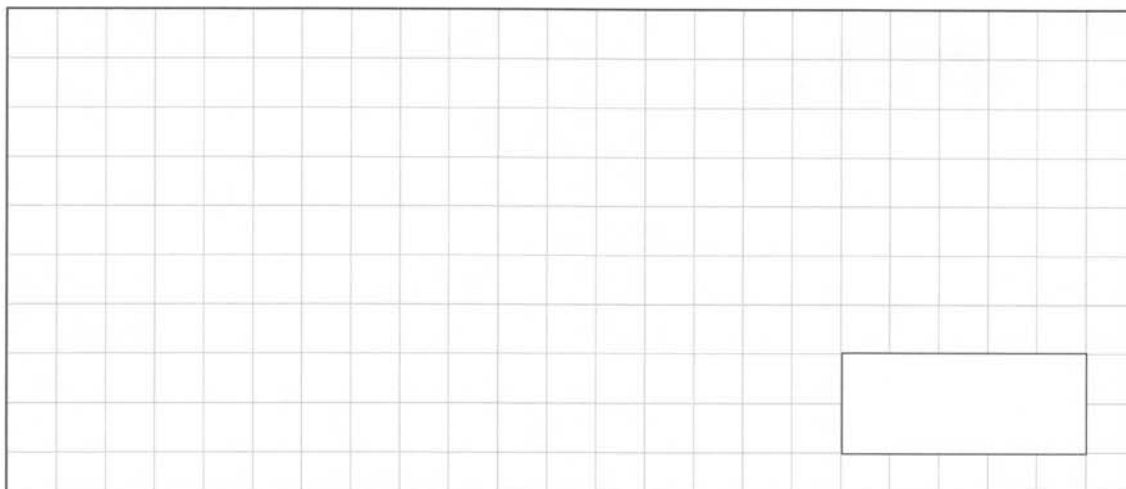
$$0.8 \times 346 =$$



1 mark

30

$$41\% \text{ of } 110 =$$



1 mark

31

$$\frac{3}{5} + \frac{7}{15} =$$

1 mark

32

$$\begin{array}{r} 3219 \\ \times \quad 53 \\ \hline \end{array}$$

Show
your
working

2 marks

33

$$\frac{6}{7} \div 3 =$$

1 mark

34

3 2 | 2 0 4 8

Show
your
working

2 marks

35

$$1\frac{1}{4} + \frac{4}{5} =$$

1 mark

36

$$1\frac{2}{7} \times 28 =$$

1 mark

Key Stage Two Mathematics



Set A Paper 2: Reasoning

Calculator Not Allowed
40 minutes

First name						
Middle name						
Last name						
School						
Date of birth	Day		Month		Year	

Total marks

--

1

Write these amounts of money in order starting with the **smallest**.

£0.72

27p

£2.70

£2.07

£2.77

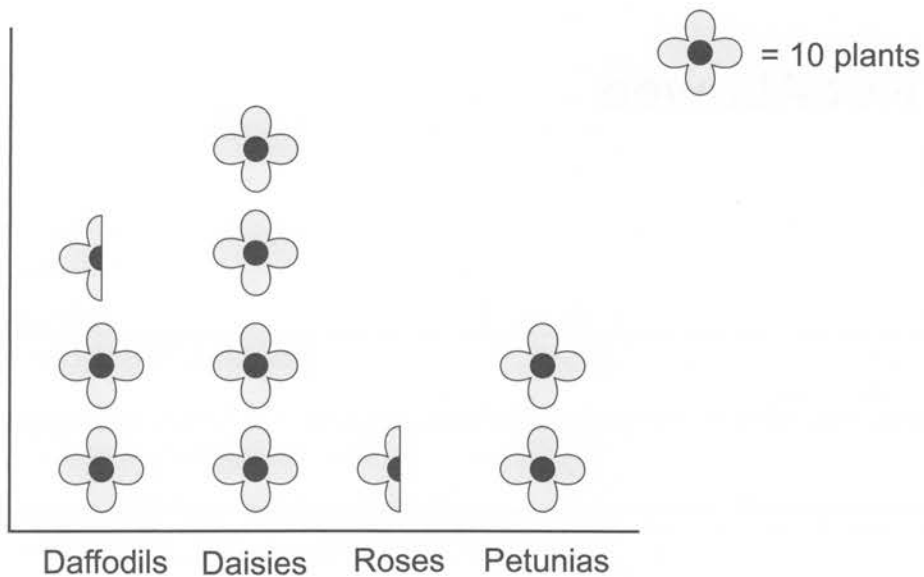
smallest

largest

1 mark

2

Emily makes a pictogram to show the types of plant in her garden.



How many **more** daisies than roses does Emily have?

1 mark

How many plants are there in Emily's garden in total?

1 mark

The shape below is made up of cubes. Each cube has a volume of 1 cm^3 .

A 3D geometric figure composed of 10 unit cubes. The front face shows a 3x3 grid of cubes with the top-right cube missing. The depth of the figure is 2 units.

1 mark

Hannah, Clare and James each buy a toy.

Hannah's toy costs £1.25.

Clare uses these coins to pay for her toy.



The **total** cost of the three toys is £6.

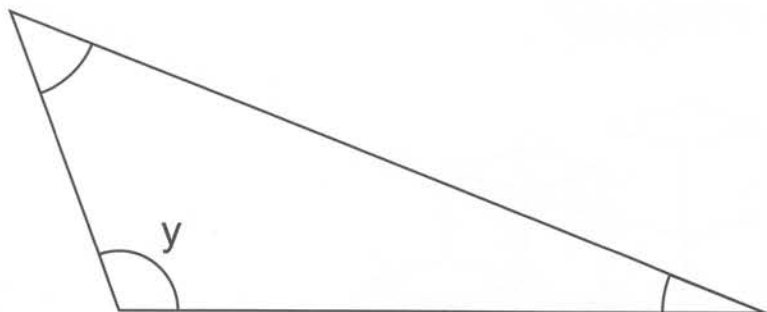
What is the cost of James's toy?

[illegible]

2 marks

5

Look at the triangle below.



How many **acute** angles are there in the triangle?

1 mark

Use a protractor (angle measurer) to measure angle y.

1 mark

6

Write $4\frac{3}{7}$ as an improper fraction.

1 mark

Write $\frac{41}{6}$ as a mixed number.

1 mark

7

A group of friends do a maths quiz as quickly as possible.

This table shows the time it took each of them to finish the quiz.

Name	Olivia	Holly	Nikhil	Millie	Winston
Time (seconds)	120.5	137.2	122.0	135.6	120.8

Which pair of friends took a total of **258 seconds** to finish the quiz?

and

1 mark

How much longer did it take Holly to finish the quiz than Millie?

seconds

1 mark

What was Nikhil's time in minutes and seconds?

minutes and **seconds**

1 mark

8

Fill in the missing digits to make the calculation below correct.

$$\begin{array}{r}
 \boxed{}32 \\
 \times \quad \boxed{}3 \\
 \hline
 396 \\
 5280 \\
 \hline
 5676
 \end{array}$$

2 marks

9

Write down an estimate that could be used to check the answer to the calculation below.

$$2.12 \times 58 = 122.96$$

$$\boxed{} \times \boxed{} = \boxed{}$$

1 mark

10

Complete the following.

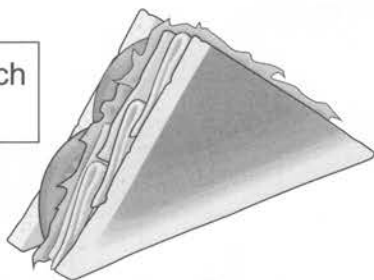
$$0.66 = \boxed{} \% = \frac{\boxed{}}{50}$$

2 marks

11

Grace and Habib go to a cafe for lunch.

Sandwich	£1.25
----------	-------



Coffee	£1.90
--------	-------

They buy two coffees and some sandwiches.
The total bill is **£8.80**.

How many sandwiches do they buy?

Show
your
working

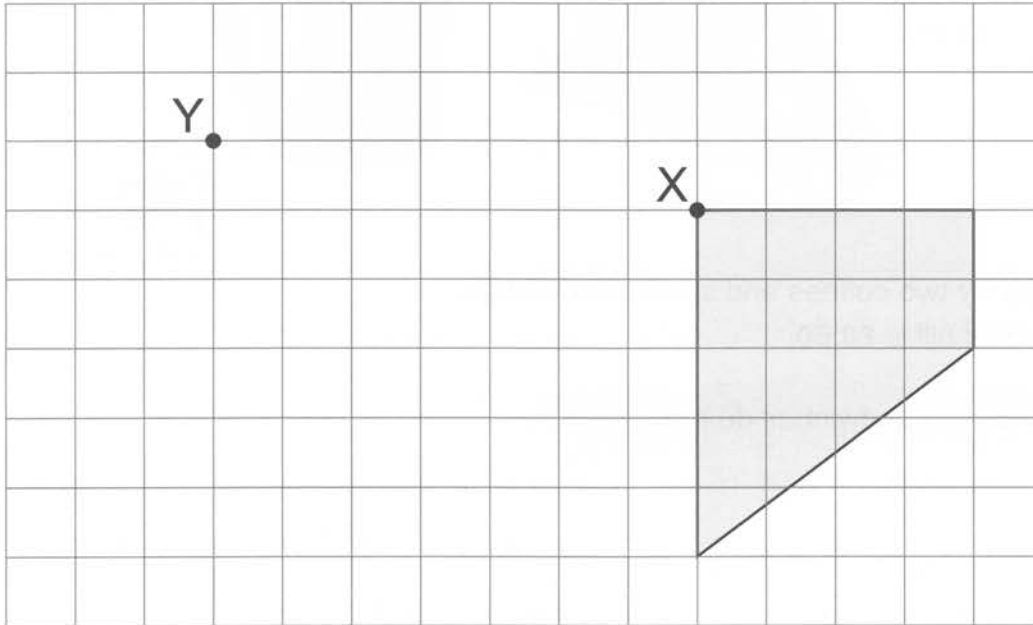
[illegible]

2 marks

12

The shape below is translated so that point X moves to point Y.

Redraw the shape in its new position on the grid.



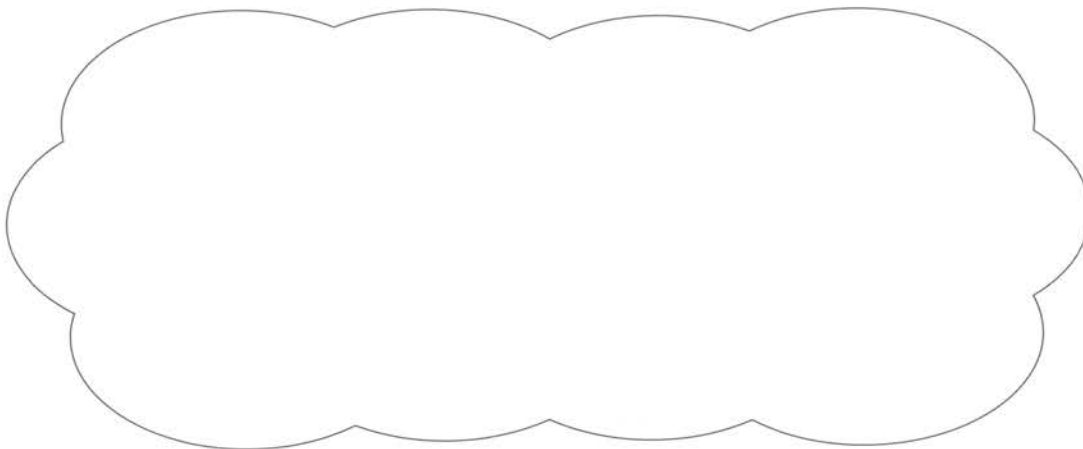
2 marks

13

Here is the answer to a multiplication.

$$23 \times 37 = 851$$

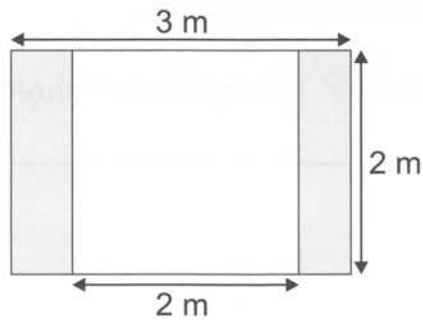
Explain how you can use it to find the answer to 22×37 .



1 mark


14

Some parts of the rectangle below have been shaded grey.



What is the **total** area of the **grey** parts of the rectangle?

Show
your
working



m^2

2 marks

15

Circle a pair of numbers that are both factors of **24**,
and which add together to give **another** factor of 24.

1 2 3 4 5 6 7 8 9

1 mark

16

Tara is decorating cakes.
It takes her 16 minutes to decorate each cake.

How many **complete** cakes could Tara decorate in **three and a half hours**?

Show
your
working

2 marks

17

The symbols \blacktriangle , \bullet and \heartsuit below each stand for a different whole number.

$$\blacktriangle + \bullet \times \heartsuit = 24$$

If $\blacktriangle = 6$, write down two different possible pairs of numbers for \bullet and \heartsuit .

$$\bullet = \boxed{}$$

$$\heartsuit = \boxed{}$$

1 mark

$$\bullet = \boxed{}$$

$$\heartsuit = \boxed{}$$

1 mark

18

Circle the number that is the correct answer to the calculation.

one million \div five hundred =

20

200

2000

20 000

1 mark

19

Patrick went cycling one weekend.

He cycled 12 fewer kilometres on Sunday than he cycled on Saturday.

He cycled **38 km** in total that weekend.

How many kilometres did he cycle on **Saturday**?

km

1 mark

20

Tom, Scott and Dawn sold cookies at the school fair.

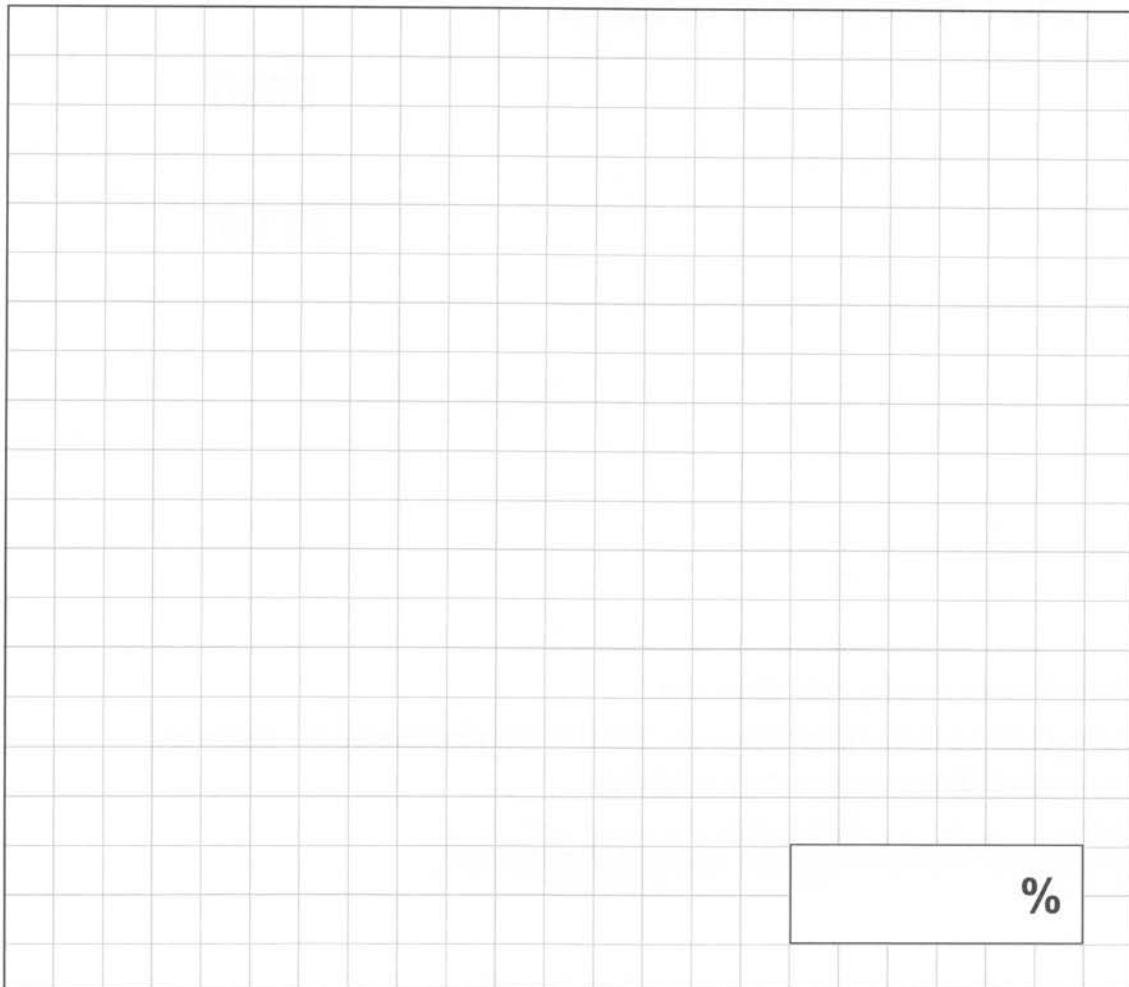
Tom had **90** cookies and sold **60%** of them.

Scott had **150** cookies and sold $\frac{2}{3}$ of them.

Dawn sold **46** cookies.

What percentage of the **cookies sold** were sold by Dawn?

Show
your
working



3 marks

Key Stage Two Mathematics



Set A Paper 3: Reasoning

Calculator Not Allowed
40 minutes

First name						
Middle name						
Last name						
School						
Date of birth	Day		Month		Year	

Total marks

--

1

Write each of these as **numbers**.

Seventy-five thousand, two hundred and thirty-eight.

1 mark

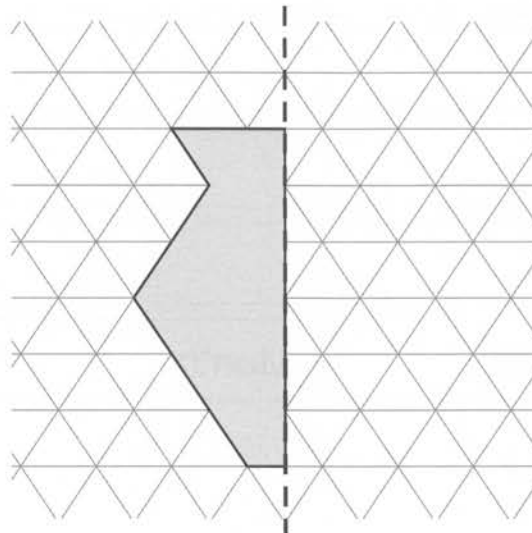
Four hundred and eighty-six thousand, two hundred and fourteen.

1 mark

2

Part of a shape has been drawn below.

Complete the shape so that it is symmetrical about the mirror line.



Mirror line

1 mark

3

This table shows the temperature in different countries.

Country	Spain	Finland	Canada	France
Temperature	14°C	-8°C	-4°C	6°C

Which country is **18°C** colder than Spain?

--

1 mark

How much **warmer** is it in France than in Finland?

°C

1 mark

4

A school has 679 bottles of water for sports day.

They buy another 8 packs of bottled water.

Each pack contains 6 bottles.

How many bottles of water do they have in total?

Show
your
working

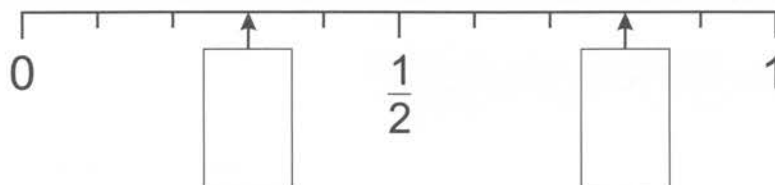
[illegible]

2 marks

5

Here is a number line.

Fill each box with the correct fraction. Give each fraction in its simplest form.



2 marks

6

A TV channel shows two news programmes each day.
The times that these programmes start and finish are shown below.

Find the length of each programme.

Morning News

Start 8:05 am

Finish 8:45 am

Length: minutes

Evening News

Start 9:50 pm

Finish 10:25 pm

Length: minutes

2 marks

One day, the start of the morning news is delayed by **19 minutes**.
The length of the programme does not change.

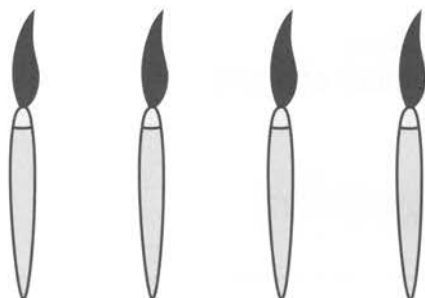
What time does the morning news **finish** on this day?

1 mark

Fill in the next two numbers in this sequence.

□, □

Tom buys four paint brushes.



He pays with a £5 note and gets £1.20 change.

How much does **one** paint brush cost?

Show
your
working

[illegible]

2 marks

A circle has a diameter of **22 cm**.

cm

10

What is the **total** number of pupils in Holly's school?

Show
your
working

KS2 Maths / Set A / Paper 3

11

Fill in the gaps below with the prime factors of each number.

$$\boxed{2} \times \boxed{} \times \boxed{} = 28$$

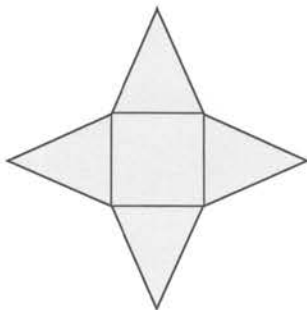
1 mark

$$\boxed{} \times \boxed{3} \times \boxed{} = 45$$

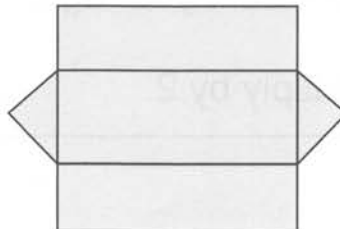
1 mark

12

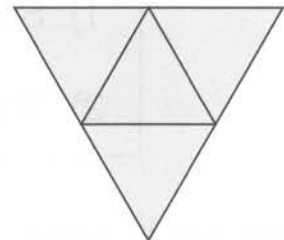
Some nets of 3D shapes are shown below.



A



B



C

Give the letter of the net which could be used to make a **triangular prism**.

1 mark

13

Write $>$, $<$ or $=$ in each box to make the statements correct.

$$5 \times (12 - 8) \quad \square \quad 30$$

1 mark

$15 + 18 \div 3 \quad \square \quad 20$

1 mark

14

Emily follows the instructions on this card.

- 1) Subtract 4 from your age.
- 2) Then multiply by 2.

She gets an answer of **10**.

How old is Emily?

Show
your
working

[illegible]

2 marks

15

Find the **mean** of this set of data.

3

1

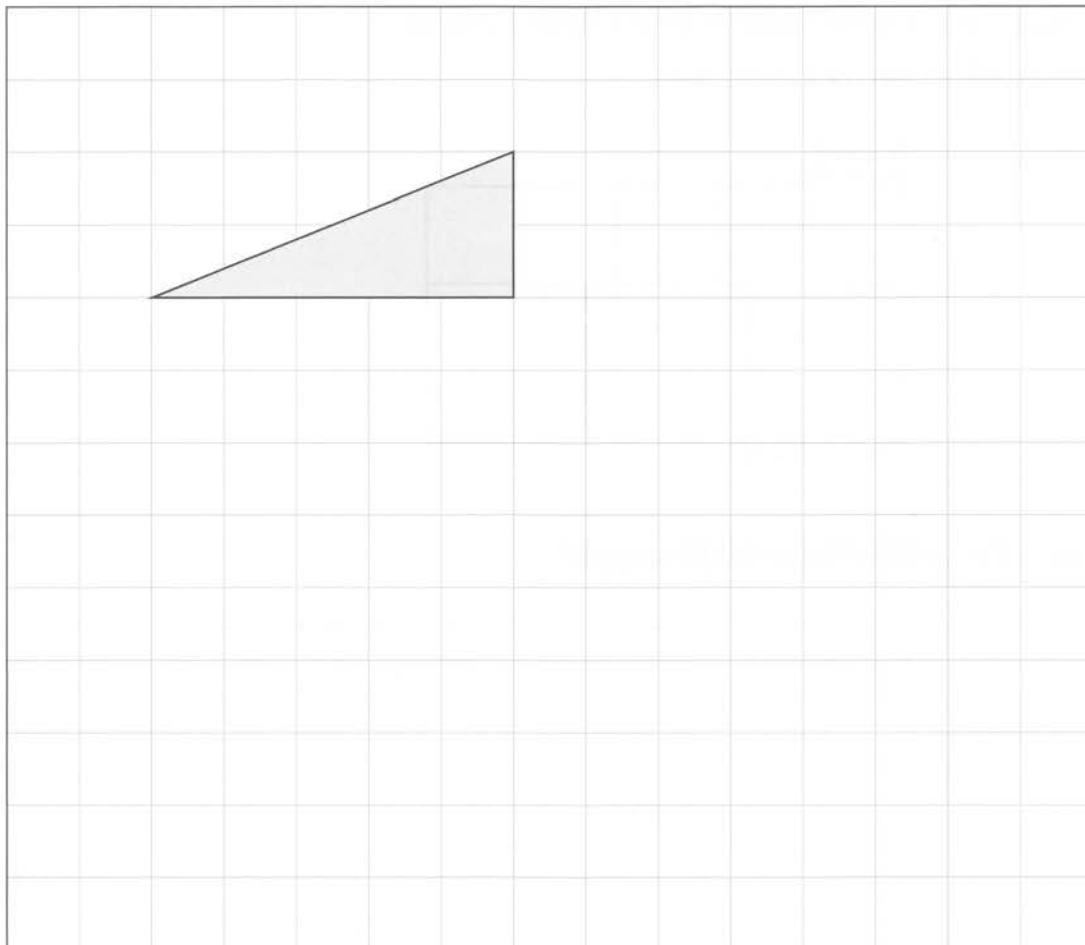
2

4

5

1 mark

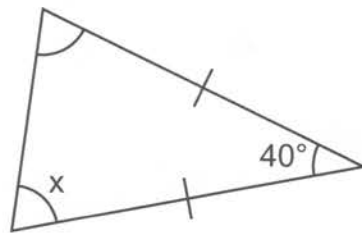
16

On the grid below, draw a **rectangle** that has **three times** the area of the grey triangle.

1 mark

17

An isosceles triangle is shown below.



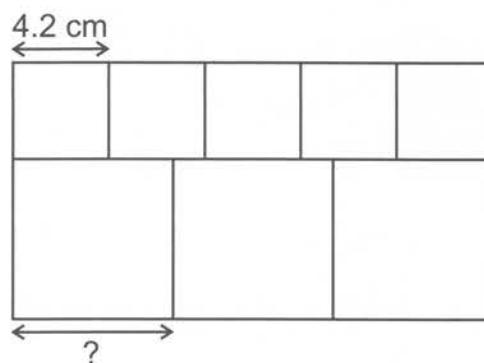
Calculate the size of angle x . Do **not** use a protractor (angle measurer).

1 mark

18

Khalid bakes some flapjack in a rectangular tray.
He cuts it into 5 small squares and 3 large squares.

Each small square is 4.2 cm wide.



What is the width of each **large** square?

Show
your
working

A blank sheet of graph paper with a grid pattern. A small rectangular box is located in the bottom right corner, containing the text "cm".

2 marks

Write the following fractions in order, from **largest** to **smallest**.

$$\frac{15}{24}$$

$$\frac{9}{6}$$

$$\frac{11}{8}$$

$$\frac{8}{12}$$

$$\frac{7}{4}$$

10

10

largest

smallest

1 mark

A factory makes chocolate cakes.

For every **millilitre** of water in the recipe, they use 2.45 grams of flour.

One day, the factory uses **five litres** of water for the cakes.

How many grams of flour do they use?

Show
your
working

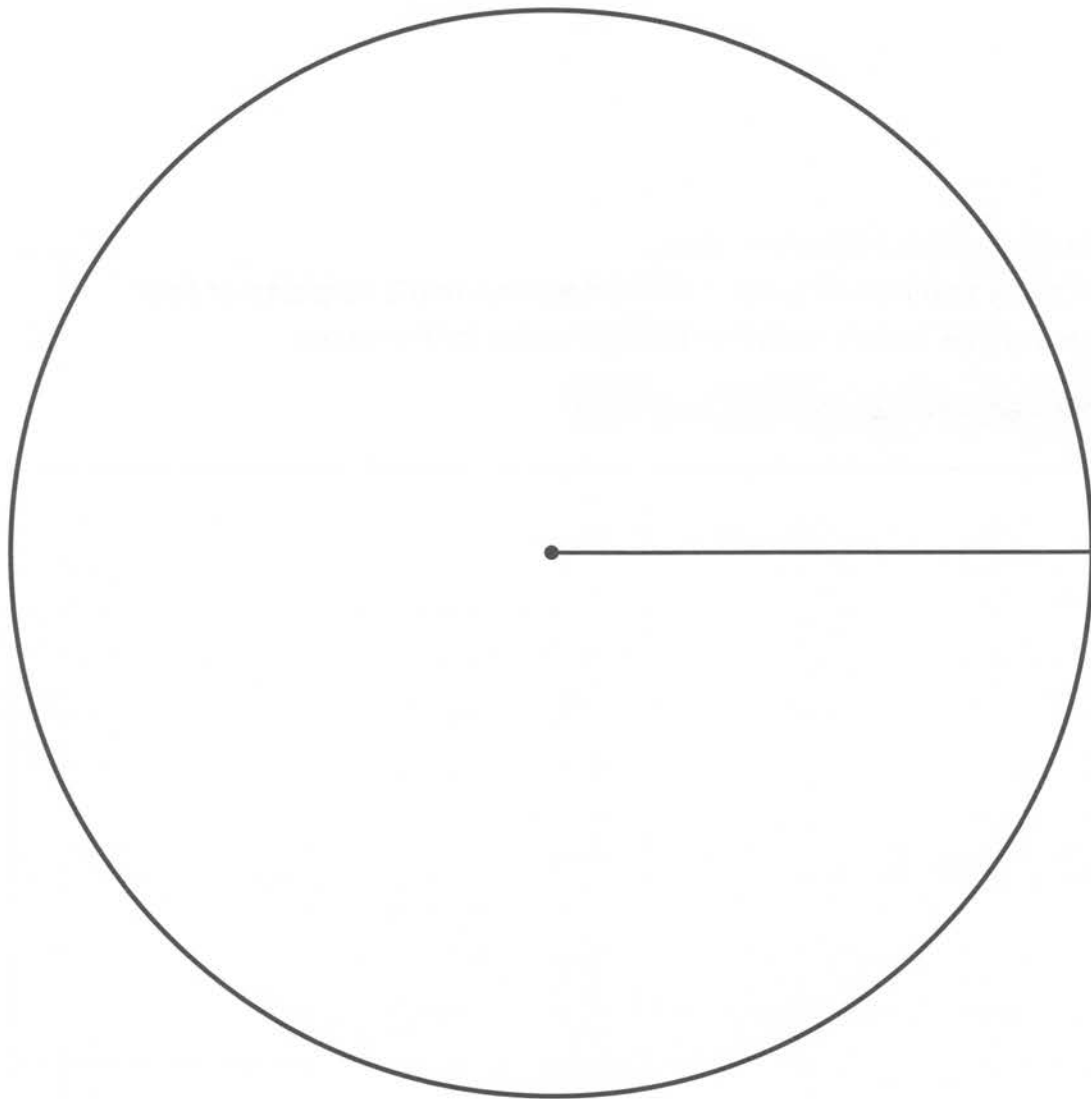
[illegible]

2 marks

An ice cream van sold **90** tubs of ice cream one day.
The table shows the number of tubs of each flavour that were sold.

Flavour	Number of tubs
Vanilla	40
Chocolate	5
Strawberry	30
Toffee	15

Use this information to complete the **pie chart** below.



2 marks

Key Stage Two Mathematics



Set B Paper 1: Arithmetic

Calculator Not Allowed
30 minutes

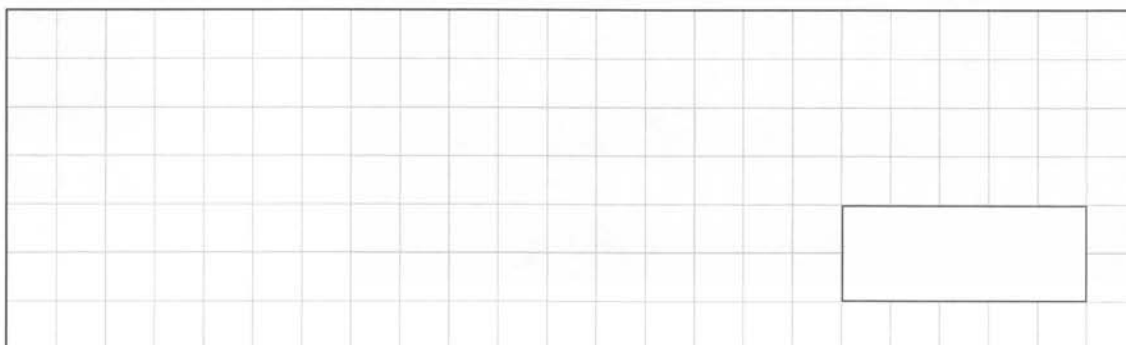
First name						
Middle name						
Last name						
School						
Date of birth	Day		Month		Year	

Total marks

--

1

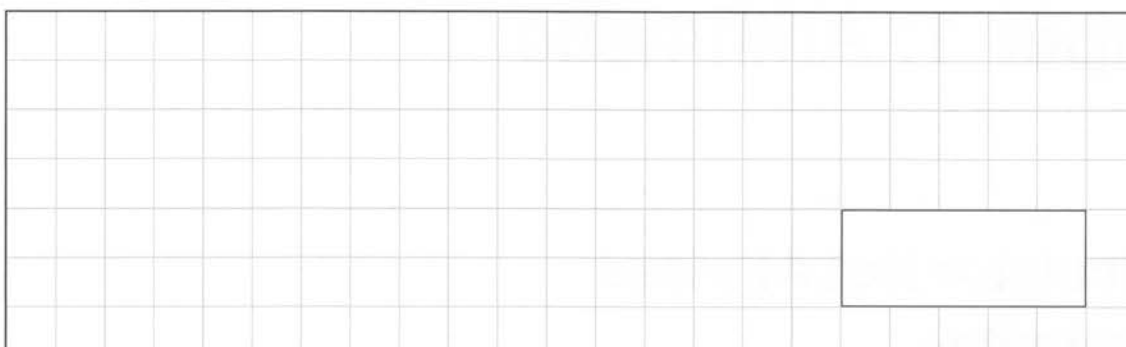
$565 + 7 =$



1 mark

2

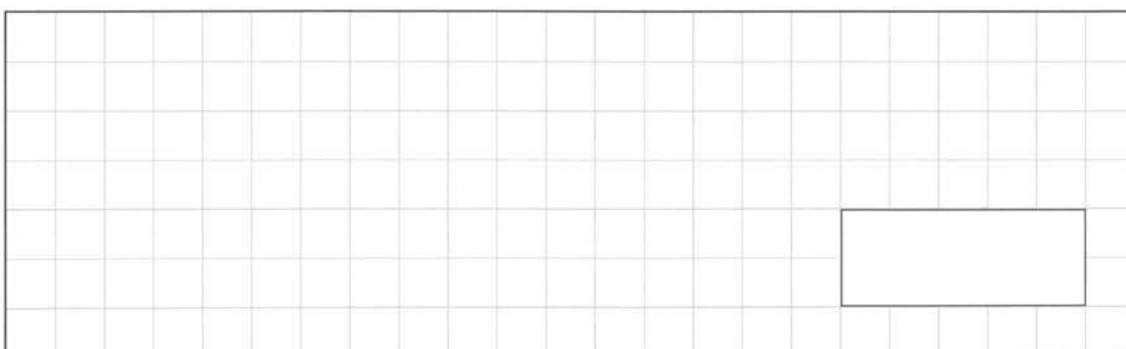
$4078 - 100 =$



1 mark

3

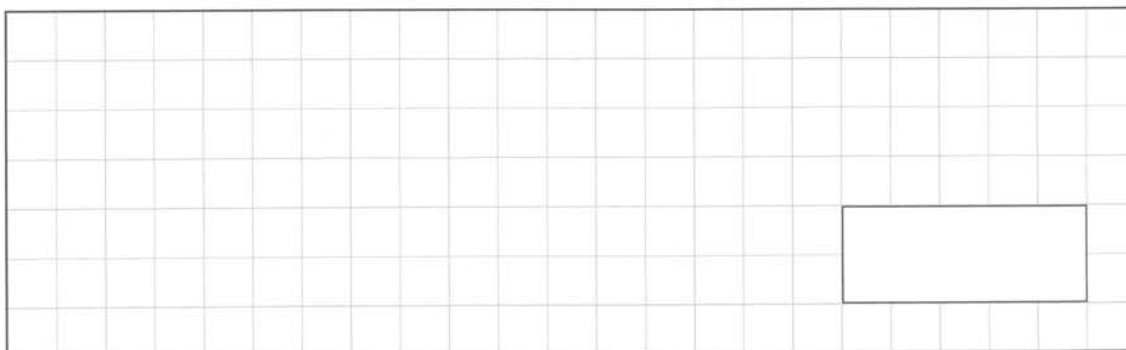
$748 \div 1 =$



1 mark

4


$423 \times 2 =$



1 mark

--

[illegible]

 $78 \div 6 =$ 

□ □ □ □ □

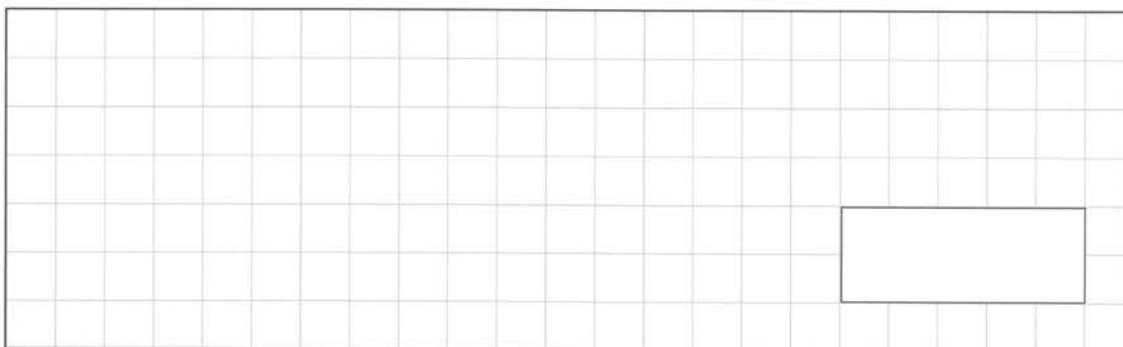
A large grid of graph paper, consisting of 20 columns and 10 rows of squares, intended for drawing a picture.

$$5 \times 6 \times 9 =$$
A large grid of graph paper with a small rectangular box on the right side. The grid is composed of 20 columns and 10 rows of squares. A small rectangular box, approximately 4 squares wide and 2 squares high, is located in the bottom right corner of the grid.

KS2 Maths / Set B / Paper 1

9

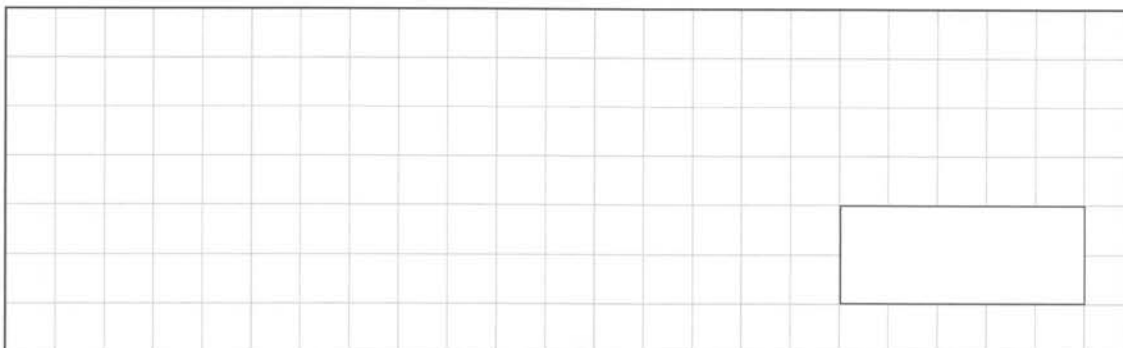
$29 \times 4 =$



1 mark

10

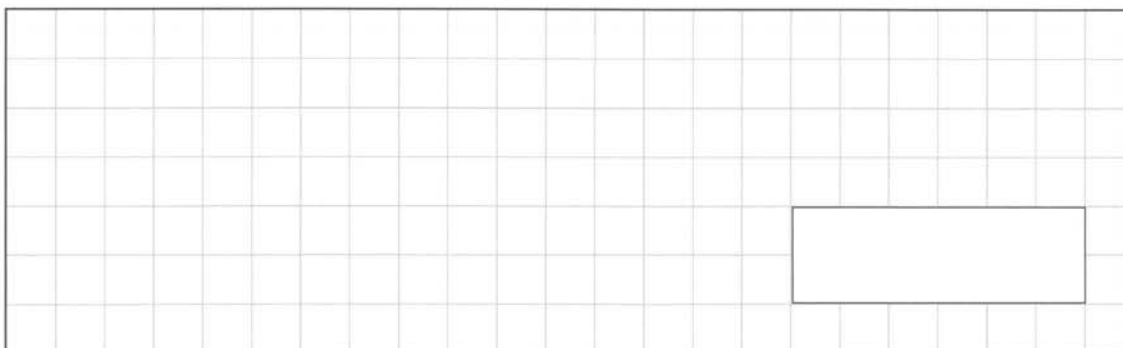
$640 \div 8 =$



1 mark

11

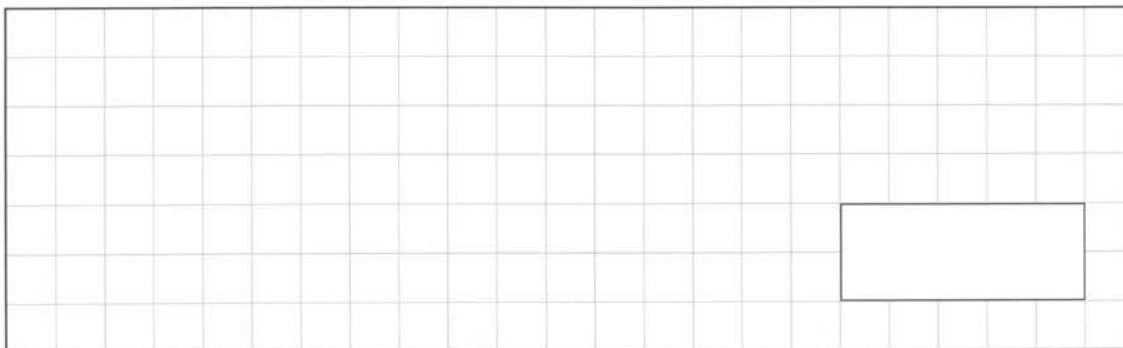
$283\,656 + 37\,529 =$



1 mark

12

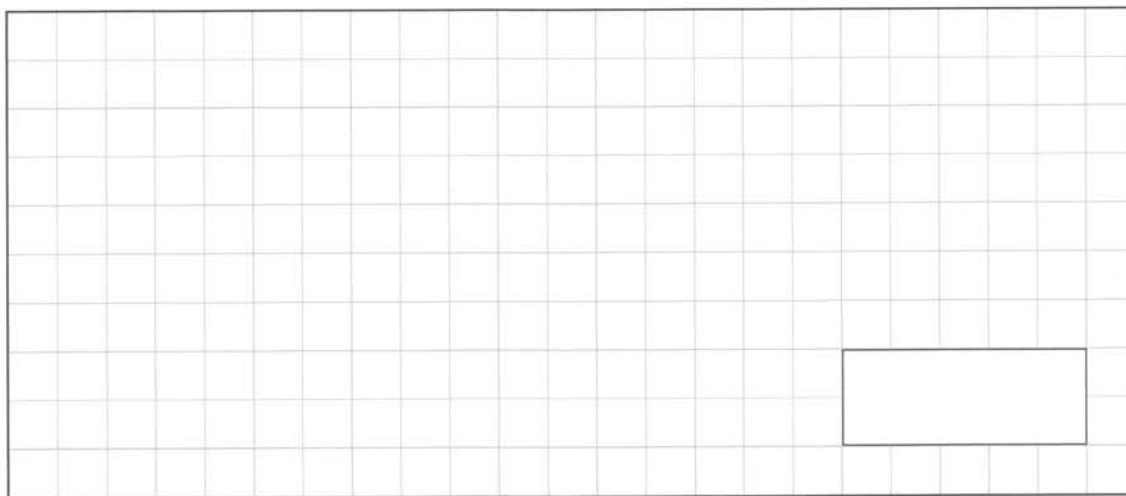
$1200 \times 7 =$



1 mark

13

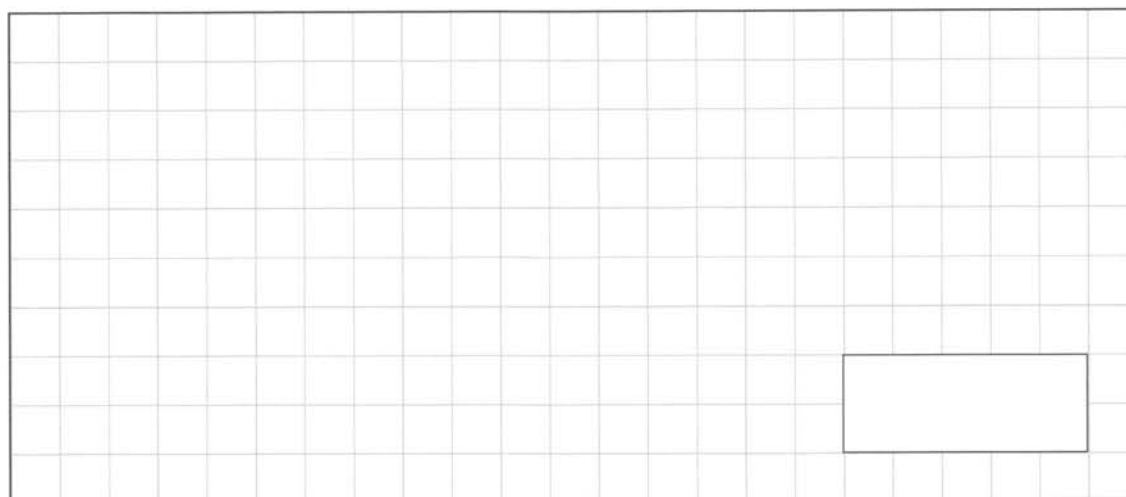
$1.003 + 2.5 =$



1 mark

14

$6382 \times 4 =$



1 mark

15

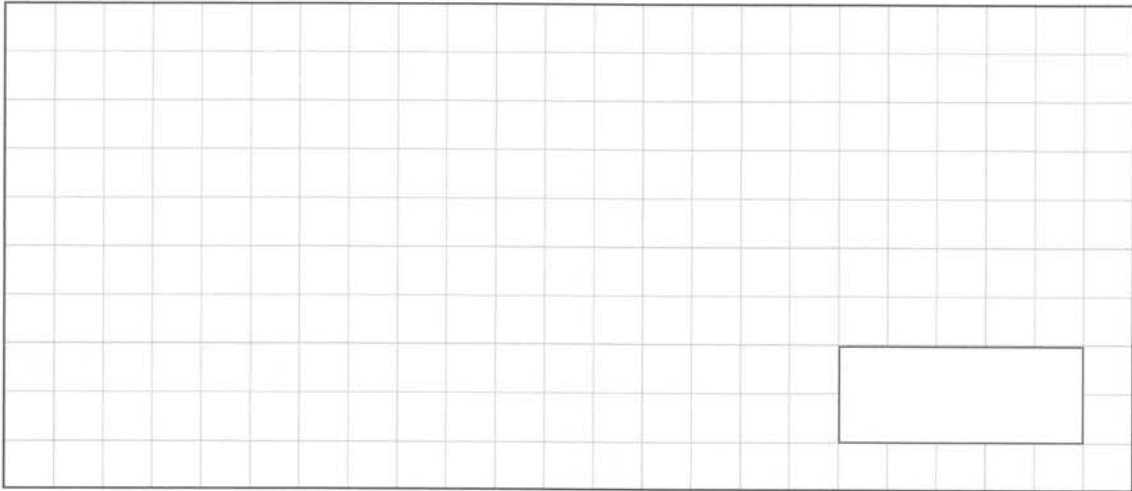
$0.39 \times 100 =$



1 mark

16

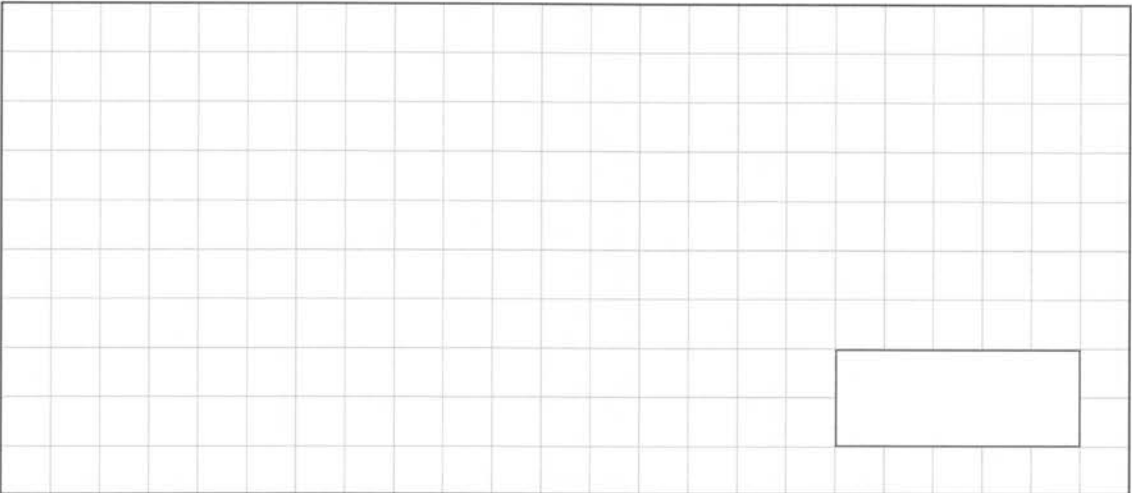
$$352 \div 4 =$$



1 mark

17

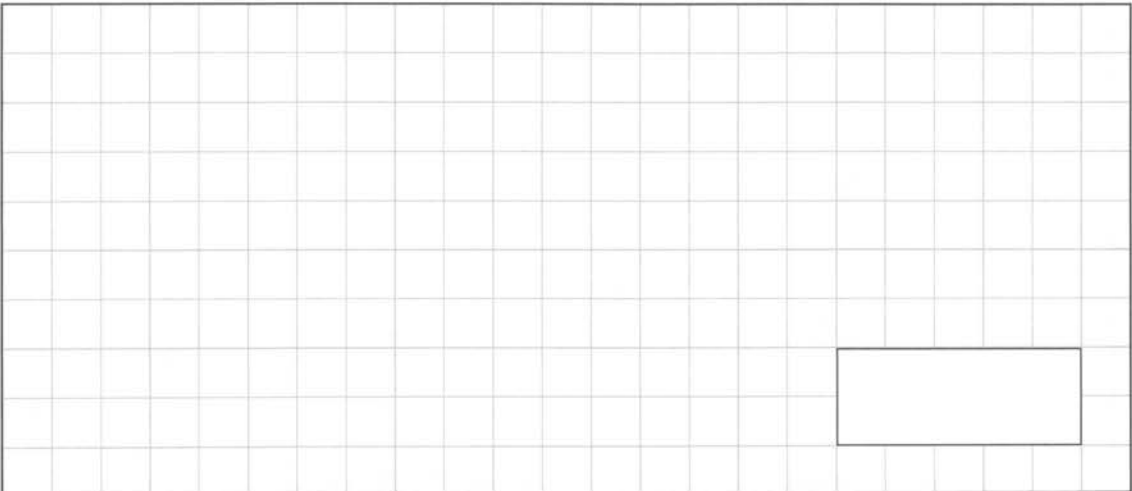
$$136\,428 - 28\,999 =$$



1 mark

18

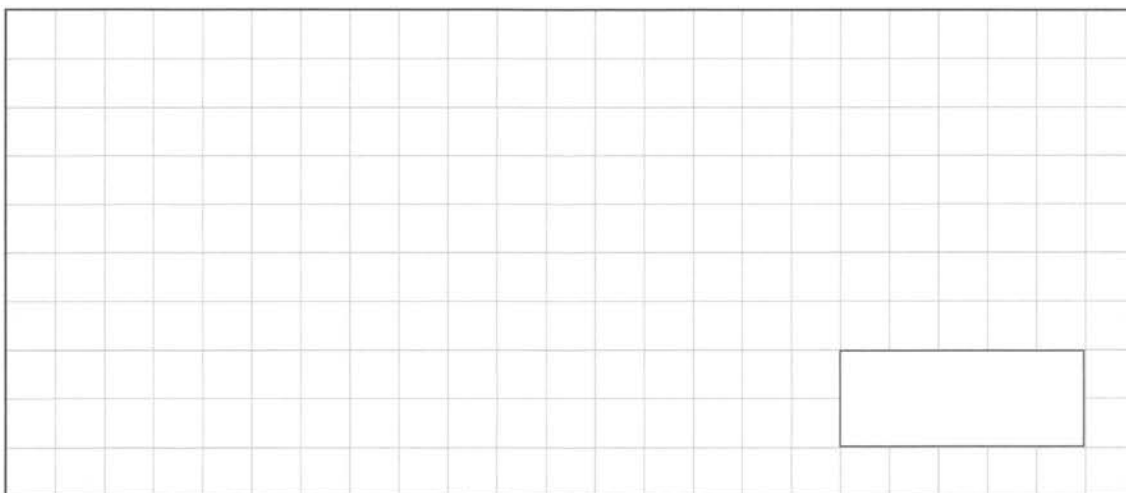
$$184.76 - 65.62 =$$



1 mark

19

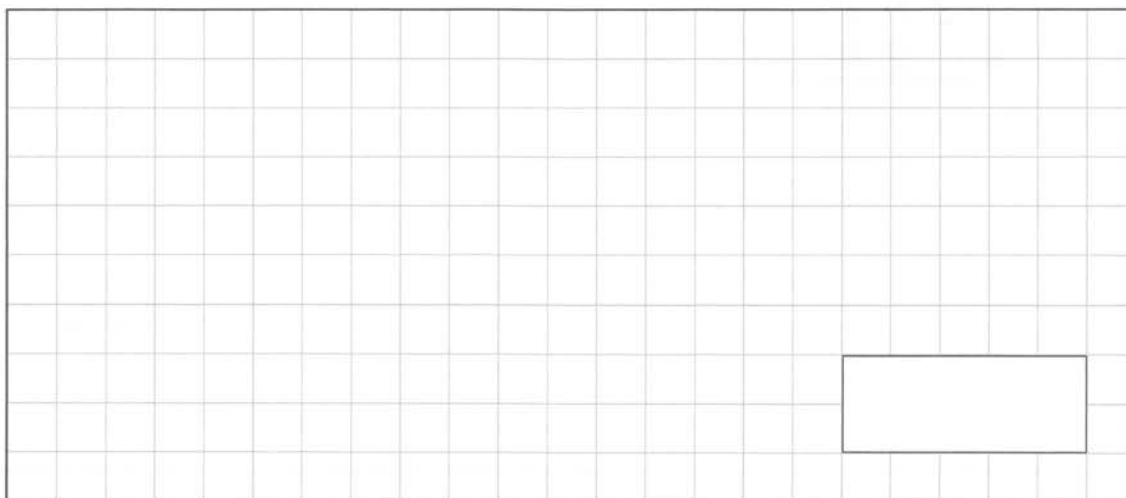
$$82 \div 1000 =$$



1 mark

20

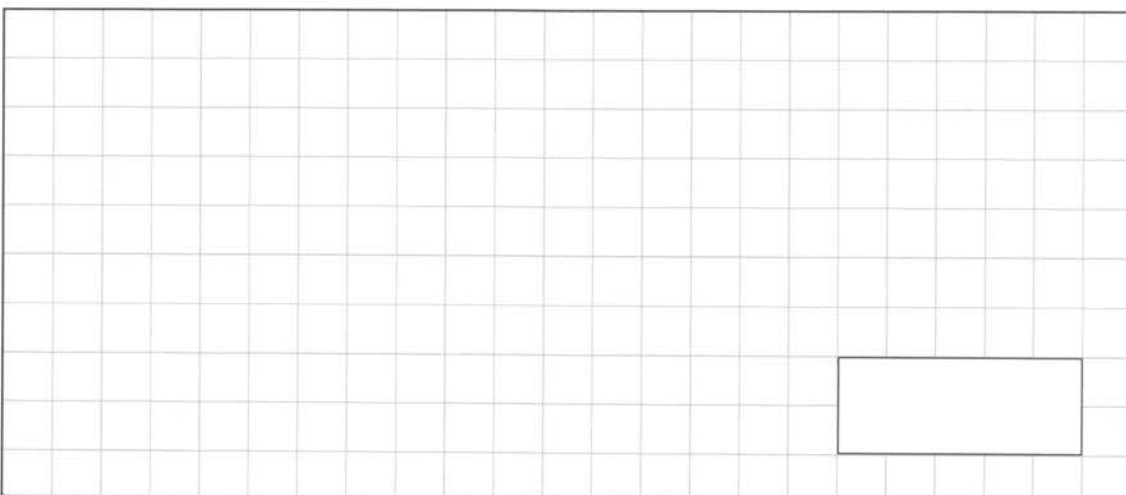
$$3^3 + 4 =$$



1 mark

21

$$14 - 5.06 =$$



1 mark

22

$$30\% \times 1600 =$$

1 mark

23

$$\begin{array}{r} 287 \\ \times 29 \\ \hline \end{array}$$

Show
your
working

2 marks

24

$$\frac{4}{9} + \frac{7}{9} =$$

1 mark

25


$$\frac{5}{14} - \frac{2}{7} =$$



1 mark

26


$$38.34 \div 9 =$$



1 mark

27

$$25 \times 2.3 =$$



1 mark

28

$$22\% \text{ of } 80 =$$

1 mark

29

$$\frac{4}{11} \times \frac{6}{7} =$$

1 mark

30

$$15 \overline{) 2010}$$

Show
your
working

2 marks

31

$$\begin{array}{r} 3261 \\ \times \quad 83 \\ \hline \end{array}$$

Show
your
working

2 marks

32

$$\frac{3}{4} \div 5 =$$

1 mark

33

$$34 \overline{) 2482}$$

Show
your
working

2 marks

34

$$\frac{3}{5} \times 300 =$$

1 mark

35

$$1\frac{2}{3} - \frac{4}{11} =$$

1 mark

36

$$6 + 15 \div 5 - 2 =$$

1 mark

Key Stage Two Mathematics



Set B Paper 2: Reasoning

Calculator Not Allowed
40 minutes

First name						
Middle name						
Last name						
School						
Date of birth	Day		Month		Year	

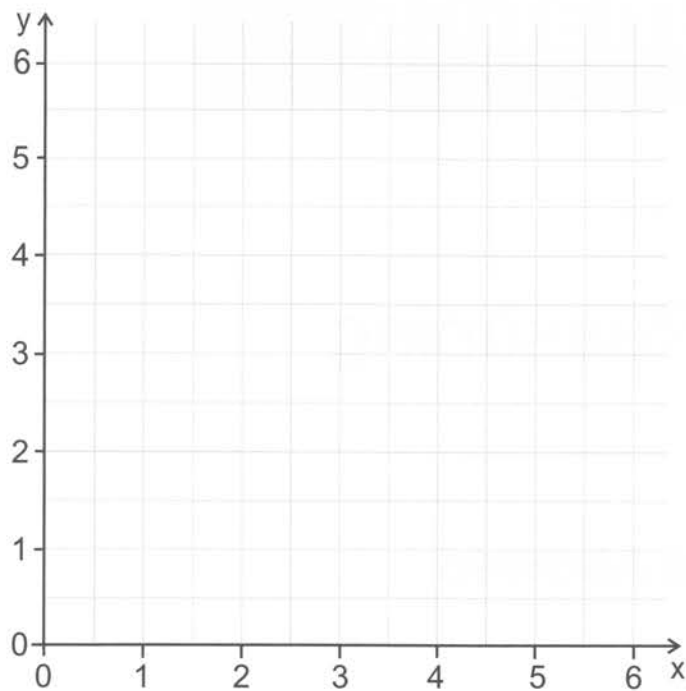
Total marks

--

1

A shape has vertices at $(1, 1)$, $(5, 3)$, $(3, 5)$ and $(5, 5)$.

Draw this shape on the grid below.



1 mark

What is the name of the shape? Circle the correct answer.

Kite

Parallelogram

Rhombus

1 mark

2

Circle the value of the 8 in 823 961.

8000

8

800

80

80 000

800 000

1 mark

3

A bag of sweets weighs 2.34 kg. Round this amount to 1 decimal place.

kg

1 mark

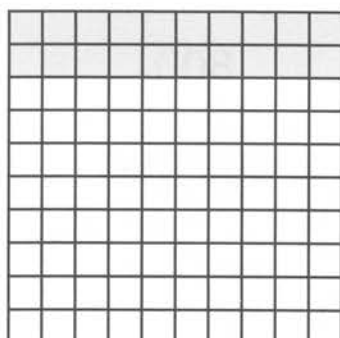
A bag of oranges weighs 2.53 kg. Round this amount to the nearest kg.

kg

1 mark

4

How many **tenths** of this shape are shaded?



tenths

1 mark

Shade another $\frac{3}{50}$ of the shape.

1 mark

5

Frances goes to a picnic.

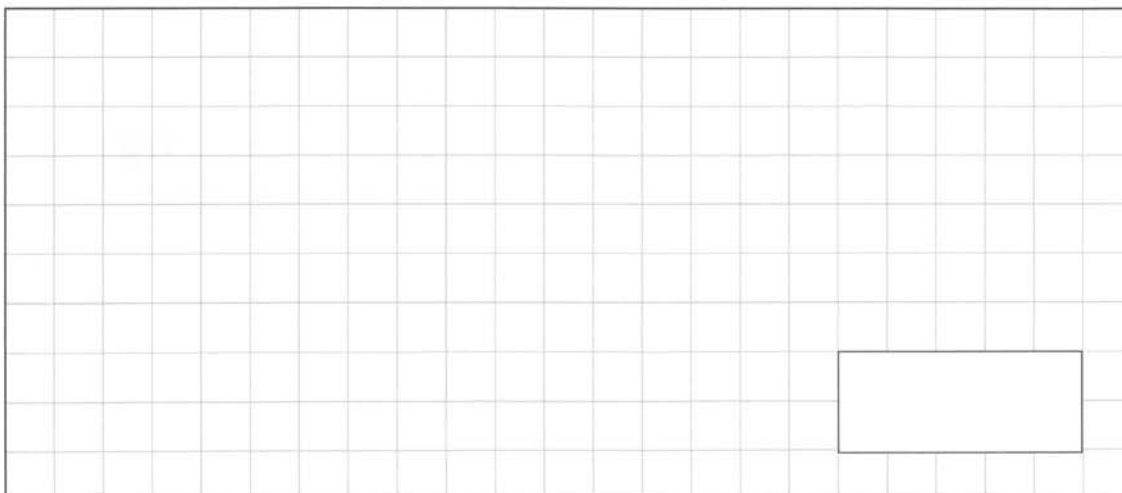
At the picnic, there are **a third as many** sausage rolls as sandwiches.

There are **four times as many** scotch eggs as sausage rolls.

There are **27** sandwiches.

How many **scotch eggs** are there?

Show
your
working



2 marks

6

Circle two numbers that have a difference of **one hundredth**.

0.003

0.04

0.4

0.5

0.004

0.014

0.401

1 mark

7

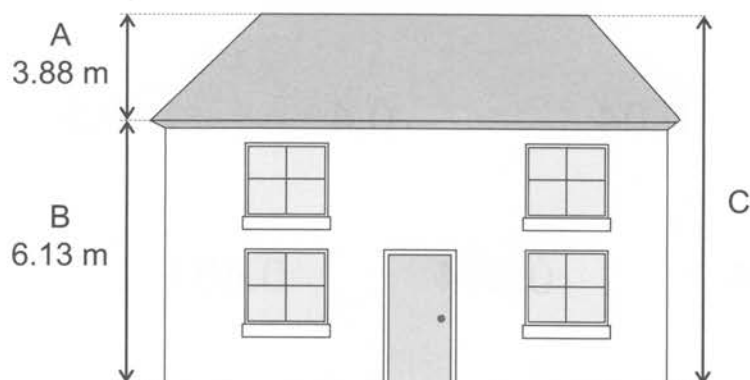
Fill in the missing digits in this addition.

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|} \hline 2 & & 3 & \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|c|} \hline & 3 & & 9 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 4 & 1 & 6 & 0 \\ \hline \end{array}
 \end{array}$$

2 marks

8

Here is a diagram of a house.



Find the total height (C) of the house.

 m

1 mark

The front door is **3.9 metres shorter** than part B of the house.

Work out the height of the front door.

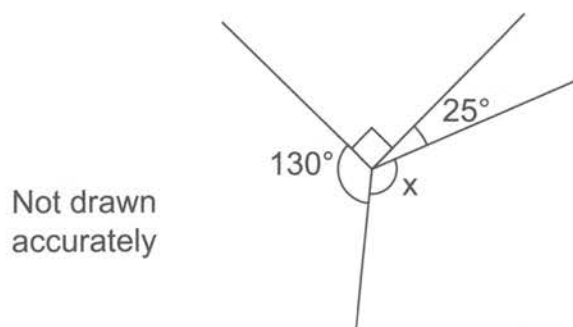
 m

1 mark

9

Find the size of angle x in the diagram below.

Do not use a protractor (angle measurer).



1 mark

10

Work out the value of $3^2 + 4^2$.

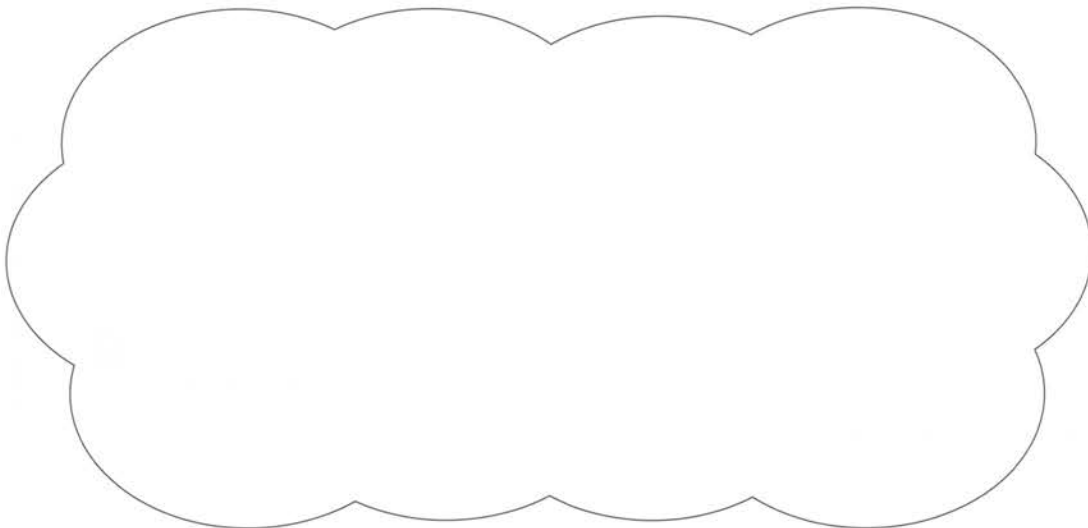
1 mark

Is the answer to the sum a square number?
Tick and explain your answer.

Yes

☐

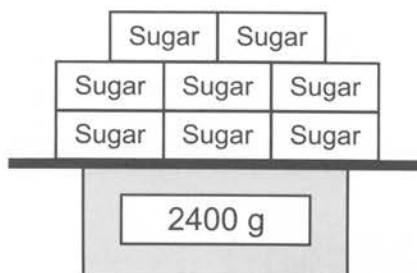
No

☐

1 mark

11

8 identical bags of sugar are placed on some weighing scales.
Their total mass is 2400 g.



Heather takes **three** of the bags off the scales.

What is the total mass of sugar on the scales now?

Show
your
working

A large grid of graph paper. In the bottom right corner, there is a small rectangular box containing the letter 'g'.

2 marks

12

Millie completed a **15 mile** sponsored walk.

How many kilometres did she walk?

km

1 mark

13

Stephen takes **£25.50** with him on a shopping trip.
 He buys a shirt for **£13.80**.
 He then spends a **third** of what he has left on his lunch.

How much money does he spend on his lunch?

Show
your
working

2 marks

14

Circle the amount below which is closest to 1.

0.09

$\frac{43}{50}$

85%

0.8

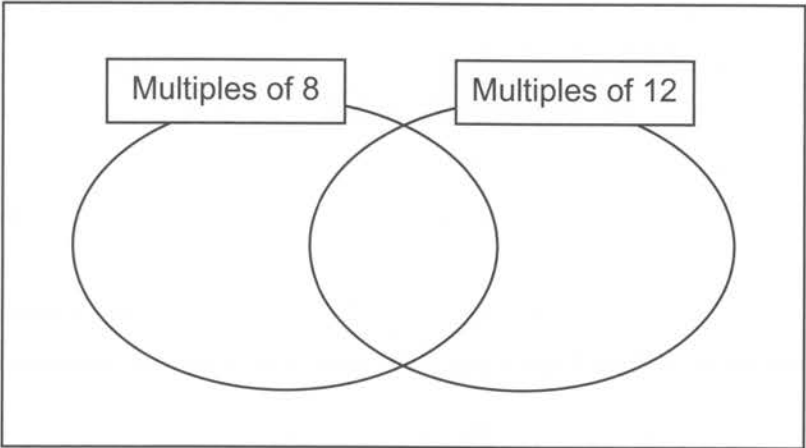
1 mark

15

Write each of the numbers below in the correct place on the diagram.

16 36 48

64 72



2 marks

16

Ramesh writes down a number.
He multiplies it by 3.
He divides the new number by 5, then adds 2.
The result is 3.2.

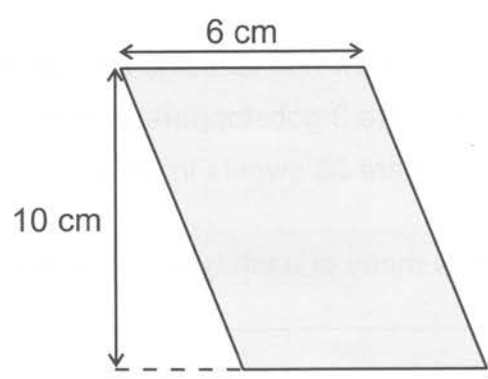
What number did he write down at the start?

Show
your
working

A large grid for showing working, consisting of 20 columns and 15 rows. A small rectangular box is located in the bottom right corner of the grid, spanning 4 columns and 2 rows.

2 marks

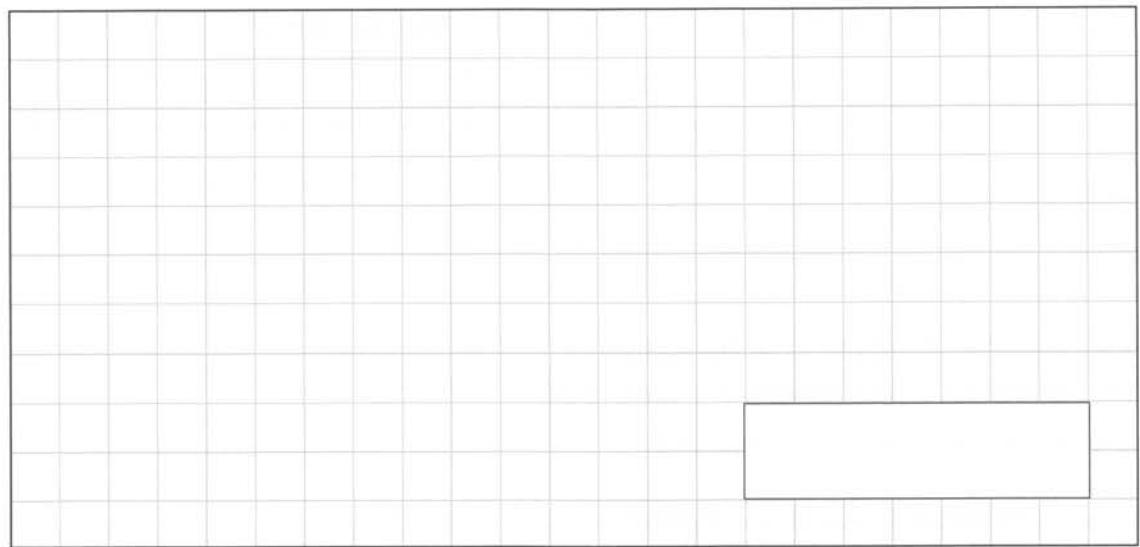
- 17 Ben has some tiles.
Each tile is the shape of a parallelogram.



He places the tiles in a row to make a shape with area **720 cm²**.

How many tiles does he use?

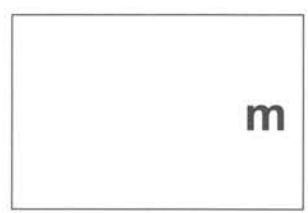
Show
your
working



2 marks

- 18 Emma has a piece of fabric which is $\frac{5}{7}$ metres long.
She cuts it into 3 equal pieces.

How long is each piece of fabric?



1 mark

19

A bag of sweets contains only gobstoppers and sherbet lemons.

There are 3 gobstoppers for every 4 sherbet lemons.

There are 56 sweets in the bag.

How many of each type of sweet are there?

Show
your
working

Gobstoppers:	Sherbet lemons:
--------------	-----------------

2 marks

20

A shop has 1092 spare coat hangers.

They store the coat hangers in boxes of 26.

The boxes are stacked in piles of 6.

How many **piles** of boxes are there?

Show
your
working

[illegible]

3 marks

Key Stage Two Mathematics



Set B Paper 3: Reasoning

Calculator Not Allowed
40 minutes

First name						
Middle name						
Last name						
School						
Date of birth	Day		Month		Year	

Total marks

--

1

Circle the **smallest** number that becomes **400** when rounded to the nearest 100.

348

401

398

449

367

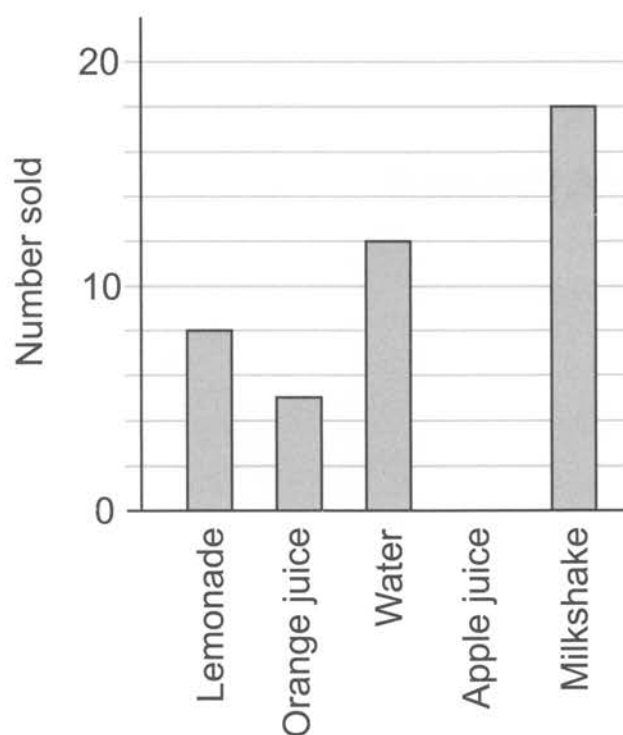
450

1 mark

2

Frances runs the drink stall at her school disco.

This bar chart shows the number of drinks sold at the disco.



Frances sold 12 apple juice drinks.

Draw the missing bar on the chart to show this.

1 mark

How many orange juices and lemonades were sold in total?

1 mark

3

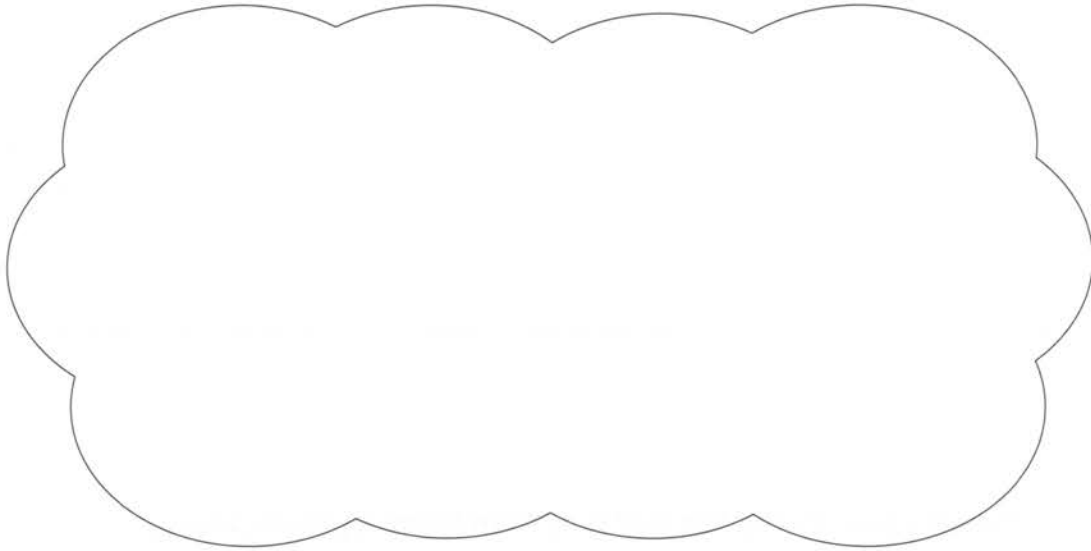
Winston says, 'When you subtract an **odd** number from another **odd** number the answer will always be **odd**.'

Is this true or false? Tick and explain your answer.

True

☐

False

☐

1 mark

4

Millie has a clock which shows Roman numerals. She looks at her clock and sees that the hour hand is exactly midway between **VIII** and **IX**.

What **two** times in the 24-hour clock could it be?

1 mark

5

There are 180 muffins on sale at a school fair.
They are sold in packs of 6.
9 people each buy a pack of muffins.

How many muffins are **left over**?

Show
your
working

2 marks

6

This is the timetable for the bus that runs from Felmsley to Wickering.

Felmsley	09:16	09:48	10:23	11:01
Bawton	09:22	09:54	10:29	11:07
Harkby	09:37	10:09	10:44	11:22
Ollerton	09:56	10:28	11:03	11:41
Wickering	10:03	10:35	11:10	11:48

How long is the bus journey from Harkby to Ollerton?

minutes

1 mark

The **11:01** bus from Felmsley arrives in Wickering **14 minutes late**.

What time does it arrive in Wickering?
Give your answer using the **12-hour clock**.

1 mark

7

Here are some numbers.

0.7

0.9

0.72

0.09

Write two of these numbers in the boxes to make the calculation correct.

$$\square + \square = 0.79$$

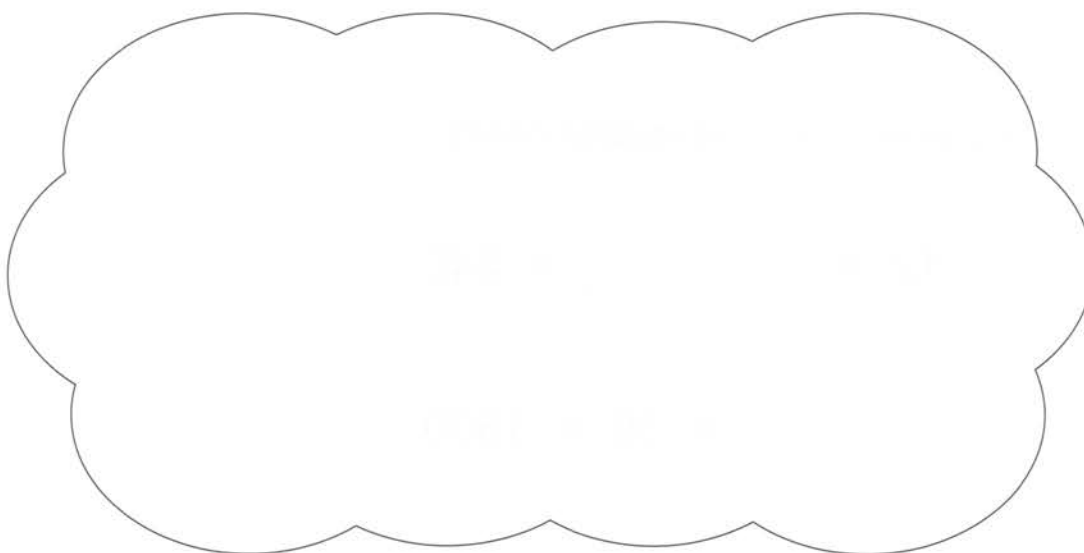
1 mark

8

List all the factors of 45.

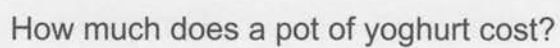
1 mark

Explain why 45 isn't a prime number.



1 mark

6 bottles of water cost £3.12.



Show
your
working

A large grid of graph paper, consisting of 20 columns and 10 rows of squares. A rectangular box is drawn in the bottom right corner, spanning 5 columns and 2 rows of the grid. The box is empty and has a thin black border.

2 marks

Fill in the gaps to make each calculation correct.

$$12 \times \boxed{} = 240$$

1 mark

$$\square \times 30 = 1800$$

1 mark

11

Ruth had a tennis lesson every day for a week.

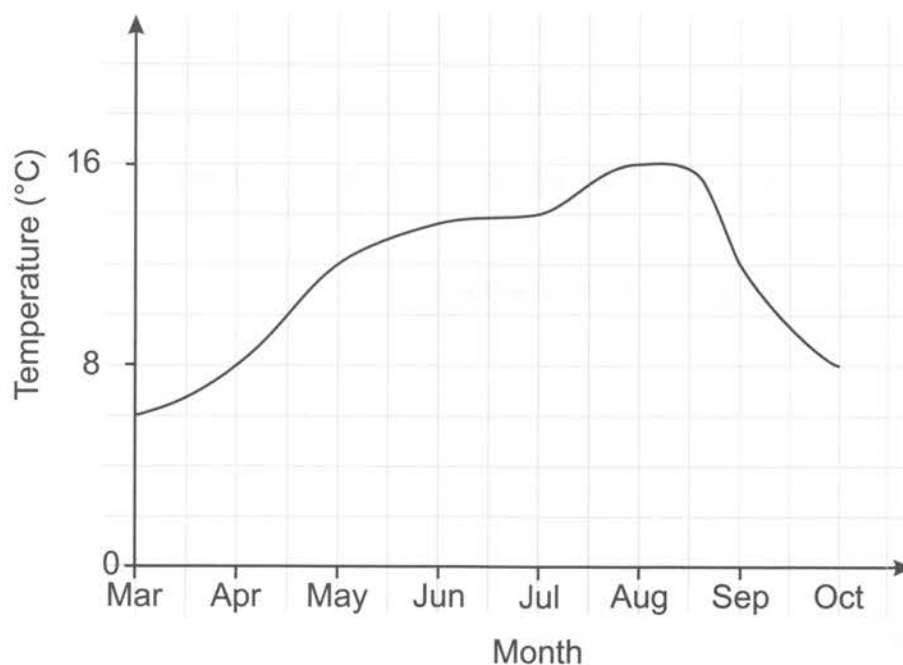
Each lesson cost the same amount, and Ruth paid **£34.65** in total.

How much did **each lesson** cost?

1 mark

12

This graph shows the average monthly temperature in a city during an eight-month period.



In which months was the average temperature 12 °C?

1 mark

What was the difference in average temperature between April and August?

 °C

1 mark

13

Find the value of ♠ and ♣ below.

$$6 \spadesuit = 24$$

♠ =

1 mark

$$6 + 3\clubsuit = 75$$

♣ =

1 mark

14

The formula for working out the cost of hiring a canoe is:

$$\text{Cost} = \text{£}15 + \text{£}6 \times \text{Number of hours hired for}$$

Work out the cost of hiring a canoe for **4 hours**.

--

1 mark

Megan paid **£27** to hire a canoe.

How long did she hire the canoe for?

Show
your
working

[illegible]

2 marks

15

A square has side length 8 cm.
The square is enlarged so that it has side length 48 cm.

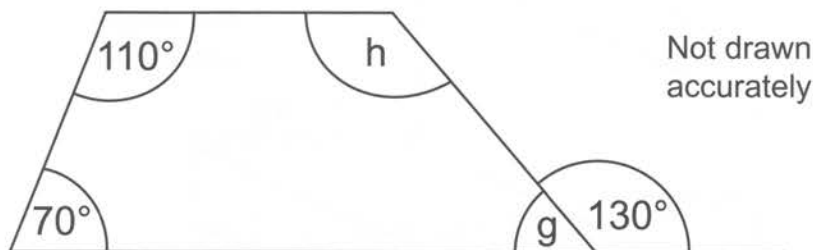
What is the scale factor of the enlargement?

1 mark

16

Work out the size of angles g and h in the trapezium shown below.

Do **not** use a protractor (angle measurer).

 $g =$

1 mark

 $h =$

1 mark

While at a theme park, Hugo spent $\frac{1}{12}$ of his time on rides and $\frac{2}{3}$ of his time queueing.

11

The diagram shows a shape made from two **cuboids**.

Not drawn accurately

7 mm

5 mm

5 mm

8 mm

10 mm

 mm^3

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19

Padma has **120** grapes.

She keeps **35%** of them for herself.

She then shares the rest between **three** of her friends.

How many grapes does each of her friends get?

Show
your
working

2 marks

20

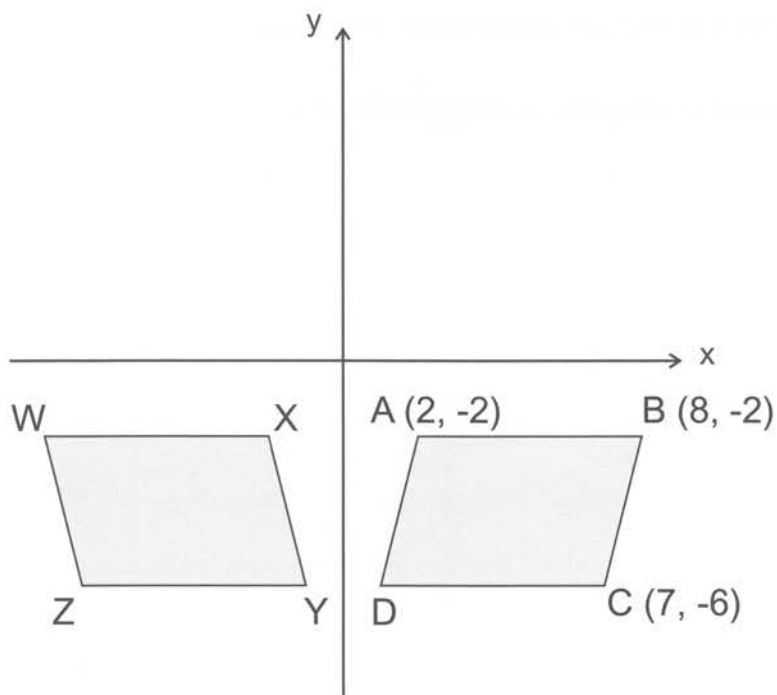
Anna wants to work out the answer to $437 \div 23$ on a calculator, but the '2' button is broken.

Explain what she could enter into the calculator to get the right answer.

1 mark

21

The parallelogram ABCD is shown on the axes below.



Find the coordinates of point **D**.

D = (,)

1 mark

The shape is reflected in the y-axis to form the parallelogram WXYZ.

What are the coordinates of point **X**?

X = (,)

1 mark



Key Stage Two

Mathematics

SATS Practice Papers

Instructions with Answers & Mark Scheme

Contents

Using the Practice Papers.....	3
Content Domain Coverage	5
Answers.....	7



Practice is the best way to prepare for the KS2 Maths SATs...

....and this brilliant pack from CGP is packed with the most realistic SATs practice you'll find, all fully up to date for the latest tests!

It contains two full sets of Practice Papers, each made up of three tests — just like the real Maths SATs pupils will take in Year 6.

We've also included full answers and mark schemes in this booklet. That means it's easy to find out which topics are their strongest, and what they need to concentrate on ahead of the SATs.

Published by CGP

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There are two sets of practice papers in this pack

Each **set** has:

Paper 1: Arithmetic

30 minute test

no calculators allowed **40 marks**

Paper 2: Reasoning

40 minute test

no calculators allowed **35 marks**

Paper 3: Reasoning

40 minute test

no calculators allowed **35 marks**

Make sure they have these things

For all the papers:

A **pen** and a **pencil**.

A **rubber**.

For papers 2 and 3 only:

A **ruler**.

A **protractor** (angle measurer).

A **mirror**.

Doing the papers

- 1) The most important thing is to **understand** the questions.
Encourage them to read everything really **carefully** so they know exactly what to do.
- 2) Some questions will ask them to show their working.

Show
your
working

The grid is 20 squares wide and 10 squares high. A smaller rectangle, representing the 'box' for the final answer, is located in the bottom right corner, spanning 5 squares wide and 3 squares high.

They need to do all their **working** on the **grid**, then write the **final answer** in the **box**.
Even if they get the answer **wrong**, they might get marks for trying to do the question in the **right way**.

How to Mark the Papers

Use the answers in this booklet to mark each paper, then write the scores in the table below. For each set, add up the scores for Paper 1, Paper 2 and Paper 3 to get a **mark out of 110**.

	Paper 1 mark out of 40		Paper 2 mark out of 35		Paper 3 mark out of 35		TOTAL mark out of 110
Set A	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<u> </u>
Set B	<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<u> </u>

The scores for these practice papers will give you a pretty good idea of whether a child is working at the **expected standard** in **Maths**.

The mark needed to achieve the **expected standard** varies from year to year, but if they get **60** or more **out of 110** then they should be on track.

Content Domain Coverage

The mark schemes in this Answer Book refer to the content domain references as they appear in the Standards & Testing Agency's 'Mathematics test framework' document.

Qu.	Requirement	Guidance	Marks (Domain)
1	13 400, 14 499, 95 782, 134 500, 195 287		1 (5N2)

These refer to elements of the National Curriculum Programme of Study, which is split by Year.

For example, '5N2' refers to Year 5, substrand N2 ('read, write, order and compare numbers').

You will see in the mark scheme that some substrands are divided further. For example, 'N3a' refers to 'place value', while 'N3b' refers to 'roman numerals'.

For a detailed breakdown on the content of each year's substrands, please visit the 'Mathematics test framework' document on the STA website.

Content Domain Coverage

This table sets out the areas of the content domain that are assessed in these papers.

Topic	Sub-strand	Ref	Set A			Set B		
			Paper 1	Paper 2	Paper 3	Paper 1	Paper 2	Paper 3
Number and place value	counting (in multiples)	N1						
	read, write, order and compare numbers	N2	Q2		Q1	Q2		
	place value; roman numerals	N3					Q2	
	identify, represent and estimate; rounding	N4						Q1
	negative numbers	N5	Q8		Q3			
	number problems	N6		Q18				
Addition, subtraction, multiplication and division (calculations)	add / subtract mentally	C1	Q6			Q1, 7		
	add / subtract using written methods	C2	Q3, 10, 13, 17			Q5, 11, 17	Q7	
	estimate, use inverses and check	C3		Q9				
	add / subtract to solve problems	C4			Q4			Q3
	properties of number (multiples, factors, primes, squares and cubes)	C5	Q21	Q15	Q11		Q10	Q8
	multiply / divide mentally	C6	Q1, 4, 7, 12, 14, 22			Q3, 8, 10, 12, 15, 19		Q10
	multiply / divide using written methods	C7	Q5, 15, 19, 25, 27, 32, 34	Q8, 16		Q4, 6, 9, 14, 16, 23, 30, 31, 33	Q20	
	solve problems (commutative, associative, distributive and all four operations)	C8		Q11, 13	Q4, 8, 10, 14, 20	Q20	Q5, 15, 16	Q5, 9, 14b
	order of operations	C9	Q28		Q13	Q36		Q20
Fractions, decimals and percentages	recognise, find, write, name and count fractions	F1			Q5		Q4	
	equivalent fractions	F2		Q6	Q5		Q4	
	comparing and ordering fractions	F3			Q19			
	add / subtract fractions	F4	Q16, 31, 35			Q24, 25, 35		Q17
	multiply / divide fractions	F5	Q24, 33, 36			Q29, 32, 34	Q18	
	fractions / decimals equivalence	F6					Q6	
	rounding decimals	F7					Q3	
	compare and order decimals	F8	Q9, 11, 18, 26			Q13, 18, 21		Q7
	multiply / divide decimals	F9	Q20, 29			Q26, 27	Q13	Q11
	solve problems with fractions and decimals	F10						
	fractions / decimal / percentage equivalence	F11		Q10			Q14	
	solve problems with percentages	F12						

Content Domain Coverage

Topic	Sub-strand	Ref	Set A			Set B		
			Paper 1	Paper 2	Paper 3	Paper 1	Paper 2	Paper 3
Ratio and proportion	relative sizes, similarity	R1		Q19			Q11	
	use of percentages for comparison	R2	Q23, 30	Q20		Q22, 28		Q19
	scale factors	R3						Q15
	unequal sharing and grouping	R4			Q18		Q19	
Algebra	missing number problems expressed in algebra	A1						Q13
	simple formulae expressed in words	A2						Q14
	generate and describe linear number sequences	A3			Q7			
	number sentences involving two unknowns	A4		Q17				
	enumerate all possibilities of combinations of two variables	A5						
Measurement	compare, describe and order measures	M1		Q1				
	estimate, measure and read scales	M2						
	money	M3						
	telling time, ordering time, duration and units of time	M4		Q7c	Q6			Q4
	convert between metric units	M5						
	convert metric / imperial	M6					Q12	
	perimeter, area	M7		Q14	Q16		Q17	
	volume	M8		Q3				Q18
	solve problems (a, money; b, length; c, mass / weight; d, capacity / volume)	M9		Q4	Q8		Q8	Q9
Geometry — properties of shapes	recognise and name common shapes	G1						
	describe properties and classify shapes	G2			Q2		Q1	
	draw and make shapes and relate 2-D to 3-D shapes (including nets)	G3			Q12			
	angles – measuring and properties	G4		Q5	Q17		Q9	Q16
	circles	G5			Q9			
Geometry — position and direction	patterns	P1						
	describe position, direction and movement	P2		Q12				Q21
	co-ordinates	P3					Q1	Q21
Statistics	interpret and represent data	S1		Q2b	Q21			Q2a, 6
	solve problems involving data	S2		Q2a, 7a, 7b				Q2b, 12
	mean average	S3			Q15			

Set A — Answers

Set A Paper 1

Qu.	Requirement	Guidance	Marks (Domain)
1	489		1 (4C6b)
2	3253		1 (4N2b)
3	$\begin{array}{r} 1\ 4\ 6 \\ +\ 7\ 5 \\ \hline 2\ 2\ 1 \\ 2\ 1 \end{array}$		1 (3C2)
4	7		1 (3C6)
5	96		1 (3C7)
6	357		1 (3C1)
7	$2 \times 3 \times 9 = 6 \times 9 = 54$		1 (4C6b)
8	3		1 (5N5)
9	7.1		1 (4F8)
10	$\begin{array}{r} 4\ 9\ 9\ 9\ 2 \\ +\ 6\ 8\ 4\ 2 \\ \hline 5\ 6\ 8\ 3\ 4 \\ 1\ 1\ 1 \end{array}$		1 (5C2)
11	3.23		1 (5F8)
12	13 000		1 (5C6b)
13	15 920		1 (5C2)
14	172.6		1 (5C6b)
15	$\begin{array}{r} 9\ 1\ 7 \\ \times\ 6 \\ \hline 5\ 5\ 0\ 2 \\ 1\ 4 \end{array}$		1 (4C7)
16	$\frac{8}{13} - \frac{5}{13} = \frac{8-5}{13} = \frac{3}{13}$		1 (3F4)
17	$\begin{array}{r} 3\ 8\ 4\ 6\ 7 \\ -\ 4\ 6\ 2\ 3 \\ \hline 3\ 3\ 8\ 4\ 4 \end{array}$		1 (5C2)
18	$\begin{array}{r} 1\ 9\ 0\ 0\ 6 \\ +\ 1\ 2\ 2\ 8\ 0 \\ \hline 3\ 1\ 2\ 8\ 6 \\ 1 \end{array}$		1 (5F8)
19	$\begin{array}{r} 1\ 0\ 3\ 2 \\ 9\overline{)9\ 2\ 2\ 8\ 1\ 8} \end{array}$		1 (5C7b)
20	0.03		1 (6F9a)
21	$5^2 - 3^2 = 25 - 9 = 16$		1 (5C5d)
22	$108 \div 12 = 9$ So $1080 \div 12 = 9 \times 10 = 90$		1 (5C6a)
23	$10\% \times 400 = 400 \div 10 = 40$ $30\% \times 400 = 3 \times 40 = 120$		1 (6R2)
24	$\frac{4}{5} \times 125 = \frac{4 \times 125}{5} = \frac{500}{5} = 100$		1 (5F5)

Qu.	Requirement	Guidance	Marks (Domain)
25	$\begin{array}{r} 8\ 5 \\ \times\ 2\ 8 \\ \hline 6\ 8\ 0 \\ 1\ 7\ 0\ 0 \\ \hline 2\ 3\ 8\ 0 \\ 1 \end{array}$	2 marks for the correct answer, otherwise 1 mark for the correct method with no more than one error. Award no marks if the error is the placing of digits in incorrect columns.	2 (5C7a)
26	$\begin{array}{r} 1\ 2\ 1\ 2\ 1\ 0 \\ -\ 4\ 6\ 7 \\ \hline 1\ 7\ 9\ 3 \end{array}$		1 (5F8)
27	$\begin{array}{r} 3\ 4\ 3 \\ 14\overline{)4\ 8\ 0\ 2} \\ -\ 4\ 2 \\ \hline 6\ 0 \\ -\ 5\ 6 \\ \hline 4\ 2 \\ -\ 4\ 2 \\ \hline 0 \end{array}$	2 marks for the correct answer, otherwise 1 mark for a correct method with no more than one error.	2 (6C7b)
28	$7 \times (37 - 29) = 7 \times 8 = 56$		1 (6C9)
29	$\begin{array}{r} 3\ 4\ 6 \\ \times\ 8 \\ \hline 2\ 7\ 6\ 8 \\ 3\ 4 \end{array}$ So $0.8 \times 346 = 2768 \div 10 = 276.8$		1 (6F9b)
30	$10\% \text{ of } 110 = 110 \div 10 = 11$ $1\% \text{ of } 110 = 11 \div 10 = 1.1$ $40\% \text{ of } 110 = 4 \times 11 = 44$ $41\% = 44 + 1.1 = 45.1$		1 (6R2)
31	$\frac{3}{5} + \frac{7}{15} = \frac{9}{15} + \frac{7}{15} = \frac{16}{15}$ or $1\frac{1}{15}$		1 (5F4)
32	$\begin{array}{r} 3\ 2\ 1\ 9 \\ \times\ 5\ 3 \\ \hline 9\ 6\ 5\ 7 \\ 1\ 6\ 0\ 9\ 5\ 0 \\ \hline 1\ 7\ 0\ 6\ 0\ 7 \\ 1\ 1 \end{array}$	2 marks for the correct answer, otherwise 1 mark for the correct method with no more than one error. Award no marks if the error is the placing of digits in incorrect columns.	2 (6C7a)
33	$\frac{6}{7} \div 3 = \frac{6}{7 \times 3} = \frac{6}{21}$ or $\frac{2}{7}$		1 (6F5b)
34	$\begin{array}{r} 6\ 4 \\ 32\overline{)2\ 0\ 4\ 8} \\ -\ 1\ 9\ 2 \\ \hline 1\ 2\ 8 \\ -\ 1\ 2\ 8 \\ \hline 0 \end{array}$	2 marks for the correct answer, otherwise 1 mark for a correct method with no more than one error.	2 (6C7b)
35	$1\frac{1}{4} + \frac{4}{5} = \frac{5}{4} + \frac{4}{5} = \frac{25}{20} + \frac{16}{20} = \frac{25+16}{20} = \frac{41}{20}$ or $2\frac{1}{20}$		1 (6F4)
36	$1\frac{2}{7} \times 28 = (1 \times 28) + (\frac{2}{7} \times 28) = 28 + \frac{56}{7} = 28 + 8 = 36$		1 (5F5)

Set A — Answers

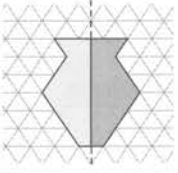
Set A Paper 2

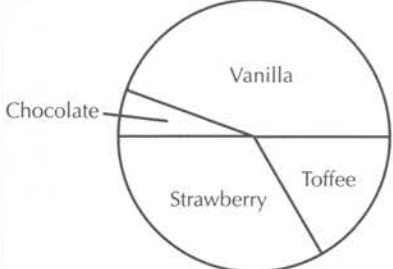
Qu.	Requirement	Guidance	Marks (Domain)
1	27p, £0.72, £2.07, £2.70, £2.77		1 (4M1)
2a	Number of daisies = $4 \times 10 = 40$ Number of roses = $10 \div 2 = 5$ $40 - 5 = 35$		1 (3S2)
2b	Number of daffodils = $2 \times 10 + \frac{1}{2} \times 10 = 20 + 5 = 25$ Number of petunias = $2 \times 10 = 20$ Total number of plants = $25 + 40 + 5 + 20 = 90$		1 (3S1)
3	10 cm^3		1 (5M8)
4	Clare's toy costs $\text{£}2 + 50\text{p} + 5\text{p} + 2\text{p} + 2\text{p} = \text{£}2.59$ Total cost of Clare and Hannah's toys: $\begin{array}{r} 1.25 \\ + 2.59 \\ \hline 3.84 \\ \hline 36.90 \\ - 3.84 \\ \hline 2.16 \end{array}$ so cost of James's toy = £2.16	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (4M9)
5a	2		1 (5G4a)
5b	110° (Allow answers between 108° and 112° .)		1 (5G4c)
6a	$4\frac{3}{7} = \frac{4 \times 7}{7} + \frac{3}{7} = \frac{28+3}{7} = \frac{31}{7}$		1 (5F2a)
6b	$41 \div 6 = 6 \text{ r } 5$ so $\frac{41}{6} = 6\frac{5}{6}$		1 (5F2a)
7a	Holly and Winston		1 (4S2)
7b	$137.2 - 135.6 = 1.6$ seconds		1 (4S2)
7c	$122.0 \div 60 = 2 \text{ r } 2$ = 2 minutes and 2 seconds		1 (5M4)
8	$\begin{array}{r} 132 \\ \times 43 \\ \hline 396 \\ 5280 \\ \hline 5676 \end{array}$	2 marks for both digits correct, otherwise 1 mark for one digit correct.	2 (5C7a)
9	$2 \times 60 = 120$ (or $60 \times 2 = 120$)		1 (5C3)
10	$0.66 = 66\% = \frac{66}{100} = \frac{33}{50}$	1 mark for each correct number.	2 (5F11)
11	Two coffees cost $\begin{array}{r} 1.90 \\ \times 2 \\ \hline 3.80 \end{array}$ Cost of sandwiches = $\begin{array}{r} 8.80 \\ - 3.80 \\ \hline 5.00 \end{array}$ $\text{£}1.25 \times 4 = \text{£}5.00$ so they bought 4 sandwiches	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6C8)

Qu.	Requirement	Guidance	Marks (Domain)
12		2 marks for the complete shape translated correctly. Otherwise, 1 mark for two vertices translated correctly.	2 (5P2)
13	E.g. 22×37 is 37 less than 23×37 , so it's 37 less than 851.		1 (5C8b)
14	Area of grey parts = area of rectangle – area of white part Area of rectangle = $3 \text{ m} \times 2 \text{ m} = 6 \text{ m}^2$ Area of white part = $2 \text{ m} \times 2 \text{ m} = 4 \text{ m}^2$ Area of grey parts = $6 \text{ m}^2 - 4 \text{ m}^2 = 2 \text{ m}^2$	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (5M7b)
15	Any one of 5 possible pairs: 1 and 2, 1 and 3, 2 and 4, 2 and 6, or 4 and 8		1 (5C5a)
16	Three and a half hours = $3 \times 60 + 30$ minutes = $180 + 30$ minutes = 210 minutes $\begin{array}{r} 13\text{ r } 2 \\ 16 \overline{) 210} \\ \underline{- 16} \\ 50 \\ \underline{- 48} \\ 2 \end{array}$ So she could decorate 13 complete cakes.	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6C7b)
17	$6 + \bullet \times \heartsuit = 24$, so $\bullet \times \heartsuit = 24 - 6 = 18$. So the answers are factor pairs of 18 (not including 6, because the three symbols represent different numbers). $\bullet = 1, \heartsuit = 18$ or $\bullet = 18, \heartsuit = 1$ $\bullet = 2, \heartsuit = 9$ or $\bullet = 9, \heartsuit = 2$	1 mark for each correct pair of numbers.	2 (6A4)
18	$500 \times 2000 = 1\,000\,000$ So $1\,000\,000 \div 500 = 2000$		1 (6N6)
19	If he had cycled the same distance on both days, he would have cycled $38 + 12 = 50 \text{ km}$ in total. So he cycled $50 \div 2 = 25 \text{ km}$ on Saturday		1 (6R1)
20	$10\% \text{ of } 90 = 90 \div 10 = 9$ So Tom sold $60\% \text{ of } 90 = 9 \times 6 = 54$ cookies. Scott sold $150 \times \frac{2}{3} = \frac{150 \times 2}{3} = \frac{300}{3} = 100$ cookies Total number of cookies sold: $\begin{array}{r} 54 \\ + 100 \\ \hline 154 \end{array}$ So Dawn sold $\frac{46}{200} = \frac{23}{100} = 23\%$	3 marks for the correct answer. Otherwise, 2 marks for a correct method with no more than one error, or 1 mark for calculating the number of cookies sold by Tom or Scott.	3 (6R2)

Set A — Answers

Set A Paper 3

Qu.	Requirement	Guidance	Marks (Domain)
1a	75 238		1 (5N2)
1b	486 214		1 (5N2)
2			1 (4G2c)
3a	Canada ($14^{\circ}\text{C} - 18^{\circ}\text{C} = -4^{\circ}\text{C}$)		1 (5N5/6N5)
3b	$14^{\circ}\text{C} - 8^{\circ}\text{C} + 14^{\circ}\text{C} = 6^{\circ}\text{C}$		1 (5N5/6N5)
4	They buy $8 \times 6 = 48$ bottles of water, so in total they have: $\begin{array}{r} 679 \\ + 48 \\ \hline 727 \end{array}$ 727 bottles	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (3C4/3C8)
5	$\frac{3}{10}$ and $\frac{8}{10} = \frac{4}{5}$	1 mark for each correct fraction.	2 (3F1c/4F2)
6a	Morning News: 40 minutes Evening News: 35 minutes	1 mark for each correct answer.	2 (3M4f)
6b	The morning news finishes 19 minutes after 8:45 am. 19 minutes = 15 minutes + 4 minutes 15 minutes after 8:45 am is 9 am, and 4 minutes after 9 am is 9:04 am (or 4 minutes past 9).		1 (3M4f)
7	59, 67		1 (6A3)
8	$\begin{array}{r} 5.10 \\ - 1.20 \\ \hline 3.80 \end{array}$ One paintbrush = $\text{£}3.80 \div 4$ $\begin{array}{r} 95 \\ 4 \overline{) 380} \\ \underline{40} \\ 380 \\ \underline{360} \\ 20 \end{array}$ 380 is 100 times bigger than 3.80, so divide by 100 to get the answer. $95 \div 100 = \text{£}0.95$ (or 95p)	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (5M9a/6C8)
9	$22 \div 2 = 11 \text{ cm}$		1 (6G5)
10	$\begin{array}{r} 16 + 12 = 28 \\ \times 23 \\ \hline 84 \\ 560 \\ \hline 644 \end{array}$ 644 pupils	2 marks for the correct answer, otherwise 1 mark for a correct method with no more than one error. No marks if the error is the placing of digits in incorrect columns.	2 (6C8)
11a	$2 \times 2 \times 7$ (or $2 \times 7 \times 2$)		1 (5C5b)
11b	$3 \times 3 \times 5$ (or $5 \times 3 \times 3$)		1 (5C5b)
12	B		1 (6G3b)

Qu.	Requirement	Guidance	Marks (Domain)
13a	$5 \times (12 - 8) = 5 \times 4 = 20 < 30$		1 (6C9)
13b	$15 + 18 \div 3 = 15 + 6 = 21 > 20$		1 (6C9)
14	Emily's age = $(10 \div 2) + 4$ $= 5 + 4 = 9$	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6C8)
15	Mean = $(3 + 1 + 2 + 4 + 5) \div 5$ $= 15 \div 5 = 3$		1 (6S3)
16	Area of triangle = $0.5 \times 5 \times 2$ $= 5$ units squared. So a correct answer is any rectangle with an area of $3 \times 5 = 15$ units squared. This could either be a 3×5 or 1×15 rectangle.		1 (6M7b)
17	Angles in a triangle add up to 180° , so the total of the two unknown angles is $180^{\circ} - 40^{\circ} = 140^{\circ}$. The two unknown angles are equal, as it's an isosceles triangle, so $x = 140^{\circ} \div 2 = 70^{\circ}$.		1 (6G4a)
18	Total width of tray = $4.2 \times 5 = 21 \text{ cm}$ Width of large square = $21 \div 3 = 7 \text{ cm}$	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6R4)
19	Write each fraction with denominator 24: $\frac{15}{24} \times \frac{9}{6} = \frac{36}{24}$, $\frac{11}{8} \times \frac{3}{3} = \frac{33}{24}$ $\frac{8}{12} \times \frac{2}{2} = \frac{16}{24}$, $\frac{7}{4} \times \frac{6}{6} = \frac{42}{24}$ In order from largest to smallest: $\frac{7}{4}, \frac{9}{6}, \frac{11}{8}, \frac{8}{12}, \frac{15}{24}$		1 (6F3)
20	Five litres = 5000 ml, so they use $5000 \times 2.45 \text{ g} =$ $5 \times 1000 \times 2.45 \text{ g} =$ $5 \times 2450 \text{ g} =$ $\begin{array}{r} 2450 \\ \times 5 \\ \hline 12250 \end{array}$	2 marks for the correct answer, otherwise 1 mark for using a correct method.	2 (5C8c)
21	$360^{\circ} \div 90 = 4^{\circ}$ per tub Vanilla angle: $40 \times 4^{\circ} = 160^{\circ}$ Chocolate angle: $5 \times 4^{\circ} = 20^{\circ}$ Strawberry angle: $30 \times 4^{\circ} = 120^{\circ}$ Toffee angle: $15 \times 4^{\circ} = 60^{\circ}$ E.g. 	2 marks for correct angles and labels on the pie chart, otherwise 1 mark for any two sectors with the correct angle and correctly labelled.	2 (6S1)

Set B — Answers

Set B Paper 1

Qu.	Requirement	Guidance	Marks (Domain)
1	572		1 (3C1)
2	3978		1 (3N2b)
3	748		1 (4C6b)
4	846		1 (4C7)
5	$\begin{array}{r} 691 \\ + 478 \\ \hline 1169 \end{array}$		1 (3C2)
6	$\begin{array}{r} 13 \\ 6 \overline{) 78} \end{array}$		1 (5C7b)
7	701		1 (3C1)
8	$5 \times 6 \times 9 = 30 \times 9 = 270$		1 (4C6c)
9	$\begin{array}{r} 29 \\ \times 4 \\ \hline 116 \end{array}$		1 (4C7)
10	$64 \div 8 = 8$, so $640 \div 8 = 8 \times 10 = 80$		1 (5C6a)
11	$\begin{array}{r} 283656 \\ + 37529 \\ \hline 321185 \end{array}$		1 (5C2)
12	$12 \times 7 = 84$ so, $1200 \times 7 = 84 \times 100 = 8400$		1 (5C6a)
13	3.503		1 (5F8)
14	$\begin{array}{r} 6382 \\ \times 4 \\ \hline 25528 \end{array}$		1 (5C7a)
15	39		1 (5C6b)
16	$\begin{array}{r} 88 \\ 4 \overline{) 352} \end{array}$		1 (5C7b)
17	$\begin{array}{r} 12364128 \\ - 28999 \\ \hline 107429 \end{array}$		1 (5C2)
18	$\begin{array}{r} 1284.76 \\ - 65.62 \\ \hline 119.14 \end{array}$		1 (4F8)
19	0.082		1 (5C6b)
20	$3^3 + 4 = 27 + 4 = 31$		1 (5C8a)
21	$\begin{array}{r} 134.910 \\ - 5.06 \\ \hline 8.94 \end{array}$		1 (5F8)
22	$10\% \times 1600 = 1600 \div 10 = 160$ $30\% \times 1600 = 160 \times 3 = 480$		1 (6R2)

Qu.	Requirement	Guidance	Marks (Domain)
23	$\begin{array}{r} 287 \\ \times 29 \\ \hline 2583 \\ 5740 \\ \hline 8323 \end{array}$	2 marks for the correct answer, otherwise 1 mark for the correct method with no more than one error. Award no marks if the error is the placing of digits in incorrect columns.	2 (5C7a)
24	$\frac{4}{9} + \frac{7}{9} = \frac{4+7}{9} = \frac{11}{9}$ or $1\frac{2}{9}$		1 (4F4)
25	$\frac{5}{14} - \frac{2}{7} = \frac{5}{14} - \frac{4}{14} = \frac{5-4}{14} = \frac{1}{14}$		1 (5F4)
26	$\begin{array}{r} 426 \\ 9 \overline{) 3834} \end{array}$ So $38.34 \div 9 = 426 \div 100 = 4.26$		1 (6F9c)
27	$20 \times 2.3 = 2 \times (10 \times 2.3)$ $= 2 \times 23 = 46$ $5 \times 2.3 = (10 \times 2.3) \div 2$ $= 23 \div 2 = 11.5$ So $25 \times 2.3 = 46 + 11.5 = 57.5$		1 (6F9b)
28	10% of 80 = $80 \div 10 = 8$ 20% of 80 = $8 \times 2 = 16$ 2% of 80 = $16 \div 10 = 1.6$ 22% of 80 = $16 + 1.6 = 17.6$		1 (6R2)
29	$\frac{4}{11} \times \frac{6}{7} = \frac{4 \times 6}{11 \times 7} = \frac{24}{77}$		1 (6F5a)
30	$\begin{array}{r} 134 \\ 15 \overline{) 2010} \\ - 15 \\ \hline 51 \\ - 45 \\ \hline 60 \\ - 60 \\ \hline 0 \end{array}$	2 marks for the correct answer, otherwise 1 mark for a correct method with no more than one error.	2 (6C7c)
31	$\begin{array}{r} 3261 \\ \times 83 \\ \hline 9783 \\ 260880 \\ \hline 270663 \end{array}$	2 marks for the correct answer, otherwise 1 mark for the correct method with no more than one error. Award no marks if the error is the placing of digits in incorrect columns.	2 (6C7a)
32	$\frac{3}{4} \div 5 = \frac{3}{4 \times 5} = \frac{3}{20}$		1 (6F5b)
33	$\begin{array}{r} 73 \\ 34 \overline{) 2482} \\ - 238 \\ \hline 102 \\ - 102 \\ \hline 0 \end{array}$	2 marks for the correct answer, otherwise 1 mark for a correct method with no more than one error.	2 (6C7c)
34	$\frac{3}{5} \times 300 = \frac{3 \times 300}{5} = \frac{900}{5} = 180$		1 (5F5)
35	$1\frac{2}{3} - \frac{4}{11} = \frac{5}{3} - \frac{4}{11} = \frac{55}{33} - \frac{12}{33}$ $= \frac{43}{33}$ or $1\frac{10}{33}$		1 (6F4)
36	$6 + 15 \div 5 - 2 = 6 + 3 - 2 = 7$		1 (6C9)

Set B — Answers

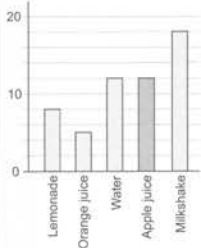
Set B Paper 2

Qu.	Requirement	Guidance	Marks (Domain)
1a			1 (4P3b/ 4G2a)
1b	Kite		1 (4P3b/ 4G2a)
2	800 000		1 (5N3a)
3a	2.3 kg		1 (5F7)
3b	3 kg		1 (5F7)
4a	20 of the 100 squares are shaded: $\frac{20}{100} = \frac{2}{10} = 2 \text{ tenths}$		1 (4F1/ 4F2)
4b	$\frac{3}{50} = \frac{6}{100}$ so 6 more squares should be shaded.		1 (4F1/ 4F2)
5	There are $\frac{1}{3} \times 27 = 9$ sausage rolls, so there are $4 \times 9 = 36$ scotch eggs.	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (5C8a)
6	0.014 and 0.004		1 (5F6b)
7		2 marks for four digits correct, otherwise 1 mark for three digits correct.	2 (4C2)
8a	$\begin{array}{r} 3.88 \\ + 6.13 \\ \hline 10.01 \text{ m} \end{array}$		1 (5M9b)
8b	$\begin{array}{r} 56.13 \\ - 3.90 \\ \hline 52.23 \text{ m} \end{array}$		1 (5M9b)
9	Angles around a point add up to 360° , so: $x = 360^\circ - 130^\circ - 90^\circ - 25^\circ = 115^\circ$		1 (5G4b)
10a	$3^2 + 4^2 = 9 + 16 = 25$		1 (5C5d)
10b	Yes, because $5^2 = 25$.		1 (5C5d)
11	1 bag of sugar weighs $2400 \text{ g} \div 8 = 300 \text{ g}$ 3 bags weigh $3 \times 300 \text{ g} = 900 \text{ g}$ $2400 \text{ g} - 900 \text{ g} = 1500 \text{ g}$	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6R1)
12	5 miles \approx 8 km. $(15 \div 5) \times 8 = 3 \times 8 = 24 \text{ km}$		1 (6M6)

Qu.	Requirement	Guidance	Marks (Domain)
13	Money left after buying shirt: $\begin{array}{r} 25.50 \\ - 13.80 \\ \hline 11.70 \end{array}$ Cost of lunch = $\pounds 11.70 \div 3$ $\begin{array}{r} 390 \\ 3 \overline{) 1170} \\ \underline{90} \\ 270 \\ \underline{270} \\ 0 \end{array}$ 1170 is 100 times bigger than 11.70, so divide by 100 to get the answer. $390 \div 100 = \pounds 3.90$	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6F9c)
14	As decimals the numbers are: $0.09, \frac{43}{50} = \frac{86}{100} = 0.86,$ $85\% = 0.85, 0.8$ So $\frac{43}{50}$ is closest to 1.		1 (6F11)
15	 2 marks for all numbers in the correct areas of the diagram, otherwise 1 mark for three numbers in the correct areas.		2 (5C8a)
16	$3.2 - 2 = 1.2$ $1.2 \times 5 = 6$ $6 \div 3 = 2$	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6C8)
17	1 tile has area $6 \text{ cm} \times 10 \text{ cm} = 60 \text{ cm}^2$ $720 \div 60 = 72 \div 6 = 12$ tiles	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6M7b)
18	$\frac{5}{7} \div 3 = \frac{5}{7 \times 3} = \frac{5}{21} \text{ m}$		1 (6F5b)
19	There are $3 + 4 = 7$ shares in total. 1 share is $56 \div 7 = 8$ sweets. So there are $3 \times 8 = 24$ gobstoppers. and $4 \times 8 = 32$ sherbet lemons	2 marks for both correct answers, otherwise 1 mark for working out the number of sweets in one share.	2 (6R4)
20	Number of boxes of coat hangers: $\begin{array}{r} 42 \\ 26 \overline{) 1092} \\ \underline{52} \\ 52 \\ \underline{52} \\ 0 \end{array}$ Number of piles = $42 \div 6 = 7$	3 marks for the correct answer. Otherwise, 2 marks for finding 42 or for a correct method with no more than one error. 1 mark for a correct method with more than one error.	3 (6C7b)

Set B — Answers

Set B Paper 3

Qu.	Requirement	Guidance	Marks (Domain)
1	367		1 (4N4b)
2a			1 (4S1)
2b	$5 + 8 = 13$		1 (4S2)
3	False. An odd number subtracted from another odd number will always give an even number, e.g. $17 - 5 = 12$.		1 (3C4)
4	08:30 or 20:30		1 (4M4b/ 3M4c)
5	$9 \times 6 = 54$ $\begin{array}{r} 1\ 7\ 8\ 10 \\ - \quad 5\ 4 \\ \hline 1\ 2\ 6 \end{array}$ muffins	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (4C8)
6a	19 minutes		1 (5S1)
6b	12:02 pm		1 (5S1)
7	0.7 and 0.09		1 (5F8)
8a	1, 3, 5, 9, 15, 45		1 (5C5a)
8b	45 has factors other than 1 and itself, so it can't be a prime number.		1 (5C5b)
9	6 bottles cost £3.12, so 2 bottles cost $\text{£}3.12 \div 3 = \text{£}1.04$ Yoghurt costs $\text{£}1.73 - \text{£}1.04 = \text{£}0.69$ or 69p OR 1 bottle costs $\text{£}3.12 \div 6 = \text{£}0.52$ 2 bottles cost $\text{£}0.52 \times 2 = \text{£}1.04$ Yoghurt costs $\text{£}1.73 - \text{£}1.04 = \text{£}0.69$ or 69p	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6C8/ 5M9a)
10a	$12 \times 20 = 240$		1 (5C6a)
10b	$60 \times 30 = 1800$		1 (5C6a)
11	$\begin{array}{r} 4\ 9\ 5 \\ 7 \overline{) 3\ 4\ 6\ 3\ 5} \\ \underline{7\ 3\ 4\ 6\ 3\ 5} \\ 0 \end{array}$ $495 \div 100 = 4.95$, so $\text{£}34.65 \div 7 = \text{£}4.95$		1 (6F9c)
12a	May and September		1 (5S2)
12b	$16 - 8 = 8\ ^\circ\text{C}$		1 (5S2)
13a	$\clubsuit = 24 \div 6 = 4$		1 (6A1)
13b	$3\clubsuit = 75 - 6 = 69$ $\clubsuit = 69 \div 3 = 23$		1 (6A1)

Qu.	Requirement	Guidance	Marks (Domain)
14a	$\text{£}15 + \text{£}6 \times 4 = \text{£}15 + \text{£}24 = \text{£}39$		1 (6A2)
14b	$\text{£}27 = \text{£}15 + \text{£}6 \times \text{number of hours hired}$ $\text{£}27 - \text{£}15 = \text{£}12 = \text{£}6 \times \text{number of hours hired}$ $12 \div 6 = 2$, so she hired the canoe for 2 hours.	2 marks for the correct answer, otherwise 1 mark for a correct method.	2 (6A2/ 6C8)
15	$48 \div 8 = 6$		1 (6R3)
16	Angles on a straight line add up to 180° so angle $g = 180^\circ - 130^\circ = 50^\circ$ Total of known angles in trapezium $= 110^\circ + 70^\circ + 50^\circ = 230^\circ$ Angles in a quadrilateral add up to 360° , so angle $h = 360^\circ - 230^\circ = 130^\circ$	1 mark for each correct angle.	2 (6G4)
17	$\frac{2}{3} - \frac{1}{12} = \frac{8}{12} - \frac{1}{12} = \frac{7}{12}$		1 (5F4)
18	Width of white cuboid = $8\text{ mm} - 5\text{ mm} = 3\text{ mm}$ Volume of white cuboid = $7 \times 3 \times 10 = 210\text{ mm}^3$ Height of shaded cuboid = $7\text{ mm} - 5\text{ mm} = 2\text{ mm}$ Volume of shaded cuboid = $2 \times 5 \times 10 = 100\text{ mm}^3$ Total volume = $210 + 100 = 310\text{ mm}^3$	2 marks for the correct answer, otherwise 1 mark for calculating the volume of either cuboid correctly.	2 (6M8b)
19	10% of 120 = $120 \div 10 = 12$ 30% of 120 = $12 \times 3 = 36$ 5% of 120 = $12 \div 2 = 6$ 35% of 120 = $36 + 6 = 42$ Remaining grapes = $120 - 42 = 78$ $\begin{array}{r} 2\ 6 \\ 3 \overline{) 7\ 8} \end{array}$, so each of her friends gets 26 grapes .	2 marks for the correct answer, otherwise 1 mark for calculating 35% of 120.	2 (6R2)
20	E.g. Double both numbers in the division to get rid of the digit 2: $874 \div 46$ will give the same answer as $437 \div 23$. Or Split up 23 into a pair of numbers that don't contain the digit 2, such as $19 + 4$, then use brackets to do the addition before the division: $437 \div (19 + 4)$.		1 (6C9)
21a	Point A is 6 units to the left of point B. So point D is 6 units to the left of point C. The x-coordinate of point D is $7 - 6 = 1$. Point D has the same y-coordinate as point C. So the coordinates of point D are (1, -6) .		1 (6P2)
21b	Point X is the image of point A. Point A is 2 units to the right of the y-axis, so point X is 2 units to the left of the y-axis. Its x-coordinate is -2. Point X has the same y-coordinate as point A. The coordinates of point X are (-2, -2) .		1 (6P3)



Key Stage Two

Mathematics

SATS Practice Papers

Pupil-friendly Answers

- Perfect for Key Stage Two pupils
- Can be used to mark their own work
- Or swap with a partner and mark each other's

Set A Paper 1: Arithmetic

Ask your teacher if you're not sure how many marks to give.

1. **489**

2. **3253**

3.
$$\begin{array}{r} 1\ 4\ 6 \\ +\ 7\ 5 \\ \hline 2\ 2\ 1 \\ \text{1}\ \text{1} \end{array}$$

4. **7**

5. **96**

6. **357**

7. $2 \times 3 \times 9 = 6 \times 9 = \mathbf{54}$

8. **3**

9. **7.1**

10.
$$\begin{array}{r} 4\ 9\ 9\ 9\ 2 \\ +\ 6\ 8\ 4\ 2 \\ \hline 5\ 6\ 8\ 3\ 4 \\ \text{1}\ \text{1}\ \text{1} \end{array}$$

11. **3.23**

12. **13 000**

13. **15 920**

14. **172.6**

15. Method 1:
$$\begin{array}{r} 9\ 1\ 7 \\ \times\ \quad\ 6 \\ \hline 5\ 5\ 0\ 2 \\ \text{1}\ \text{4} \end{array}$$

Method 2:

\times	6
900	5400
10	60
7	42
	5502

16. $\frac{8}{13} - \frac{5}{13} = \frac{8-5}{13} = \frac{3}{13}$

17.
$$\begin{array}{r} 3\ 8\ 14\ 6\ 7 \\ -\ 4\ 6\ 2\ 3 \\ \hline 3\ 3\ 8\ 4\ 4 \end{array}$$

18.
$$\begin{array}{r} 1\ 9.0\ 0\ 6 \\ +\ 1\ 2.2\ 8\ 0 \\ \hline 3\ 1.2\ 8\ 6 \\ \text{1} \end{array}$$

19.
$$\begin{array}{r} 1\ 0\ 3\ 2 \\ 9\overline{)9\ 2\ 8\ 1\ 8} \end{array}$$

20. **0.03**

21. $5^2 - 3^2 = 25 - 9 = \mathbf{16}$

22. $108 \div 12 = 9$
So $1080 \div 12 = 9 \times 10 = \mathbf{90}$

23. $10\% \times 400 = 400 \div 10 = 40$
So $30\% \times 400 = 3 \times 40 = \mathbf{120}$

24. $\frac{4}{5} \times 125 = \frac{4 \times 125}{5} = \frac{500}{5} = \mathbf{100}$

25. Method 1:

\times	8	5
	2	8
	6	8
	4	
	1	7
	1	0
	2	3
	1	8
	0	

Method 2:

\times	20	8
80	1600	640
5	100	40
	1700	680
	2380	

Give **2 marks** if the answer is **2380**.

Give **1 mark** if the answer is wrong but they've tried to use a correct method.

26.
$$\begin{array}{r} 1\ 2\ 1\ 2\ 1\ 5\ 10 \\ -\ 4\ 6\ 7 \\ \hline 1\ 7\ 9\ 3 \end{array}$$

27. Method 1:

$$\begin{array}{r} 343 \\ 14 \overline{) 4802} \\ \underline{-42} \\ 60 \\ \underline{-56} \\ 42 \\ \underline{-42} \\ 0 \end{array}$$

Method 2:

$$14 \overline{) 4802}$$

Give **2 marks** if the answer is **343**.

Give **1 mark** if the answer is wrong but they've tried to use a correct method.

28. $7 \times (37 - 29) = 7 \times 8 = \mathbf{56}$

29. Method 1:

$$\begin{array}{r} 346 \\ \times 8 \\ \hline 2768 \end{array}$$

Method 2:

\times	8
300	2400
40	320
6	48
	2768

So $0.8 \times 346 = 2768 \div 10$
 $= \mathbf{276.8}$

30. $10\% \text{ of } 110 = 110 \div 10 = 11$
 $1\% \text{ of } 110 = 11 \div 10 = 1.1$
 $40\% \text{ of } 110 = 4 \times 11 = 44$
 $41\% = 44 + 1.1 = \mathbf{45.1}$

31. $\frac{3}{5} + \frac{7}{15} = \frac{9}{15} + \frac{7}{15} = \frac{16}{15}$ or $1\frac{1}{15}$

32. Method 1:

$$\begin{array}{r} 3219 \\ \times 53 \\ \hline 9657 \\ 160950 \\ \hline 170607 \end{array}$$

Method 2:

\times	50	3
3000	150 000	9000
200	10 000	600
10	500	30
9	450	27
	160 950	9657
	170 607	

Give **2 marks** if the answer is **170 607**.

Give **1 mark** if the answer is wrong but they've tried to use a correct method.

33. $\frac{6}{7} \div 3 = \frac{6}{7 \times 3} = \frac{6}{21}$ or $\frac{2}{7}$

34. Method 1:

$$\begin{array}{r} 64 \\ 32 \overline{) 2048} \\ \underline{-192} \\ 128 \\ \underline{-128} \\ 0 \end{array}$$

Method 2:

$$32 \overline{) 2048}$$

Give **2 marks** if the answer is **64**.

Give **1 mark** if the answer is wrong but they've tried to use a correct method.

35. $1\frac{1}{4} + \frac{4}{5} = \frac{5}{4} + \frac{4}{5} = \frac{25}{20} + \frac{16}{20}$
 $= \frac{25+16}{20}$
 $= \frac{41}{20}$ or $2\frac{1}{20}$

36. $1\frac{2}{7} \times 28 = (1 \times 28) + (\frac{2}{7} \times 28)$
 $= 28 + \frac{56}{7} = 28 + 8 = \mathbf{36}$

Set A Paper 2: Reasoning

Ask your teacher if you're not sure how many marks to give.

1. **27p, £0.72, £2.07, £2.70, £2.77**

2a. Number of daisies = $4 \times 10 = 40$

Number of roses = $10 \div 2 = 5$

$40 - 5 = 35$

So Emily has **35** more daisies than roses.

2b. Number of daffodils:

$2 \times 10 + \frac{1}{2} \times 10 = 20 + 5 = 25$

Number of petunias: $2 \times 10 = 20$

Total number of plants:

$25 + 40 + 5 + 20 = \mathbf{90}$

3. There are 10 cubes,
so the volume is **10 cm³**

4. Clare's toy costs

$\pounds 2 + 50p + 5p + 2p + 2p = \pounds 2.59$

Total cost of Clare and Hannah's toys:

$$\begin{array}{r} 1.25 \\ + 2.59 \\ \hline 3.84 \end{array}$$

$$\begin{array}{r} 50.00 \\ - 3.84 \\ \hline 46.16 \end{array}$$

So cost of James's toy = **£2.16**

Give **2 marks** if the answer is **£2.16**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

5a. **2 acute angles**

5b. **110°**

Give **1 mark** for any answer
between 108° and 112°.

6a. $4\frac{3}{7} = \frac{4 \times 7}{7} + \frac{3}{7} = \frac{28+3}{7} = \frac{31}{7}$

6b. $41 \div 6 = 6 \text{ r } 5$ so $\frac{41}{6} = 6\frac{5}{6}$

7a. **Holly and Winston**

because $137.2 + 120.8 = 258$

7b. $137.2 - 135.6 = \mathbf{1.6 \text{ seconds}}$

7c. $122.0 \div 60 = 2 \text{ r } 2$

= 2 minutes and 2 seconds

8.

$$\begin{array}{r} 132 \\ \times 43 \\ \hline 396 \\ 5280 \\ \hline 5676 \end{array}$$

Give **2 marks** if both digits are correct.

Give **1 mark** if only one digit is correct.

9. **$2 \times 60 = 120$**

(or **$60 \times 2 = 120$**)

10. $0.66 = \mathbf{66\%} = \frac{33}{50}$

(because $66\% = \frac{66}{100} = \frac{33}{50}$)

Give **1 mark** for each correct answer.

11. Two coffees cost

$$\begin{array}{r} 1.90 \\ \times 2 \\ \hline 3.80 \end{array}$$

The sandwiches cost

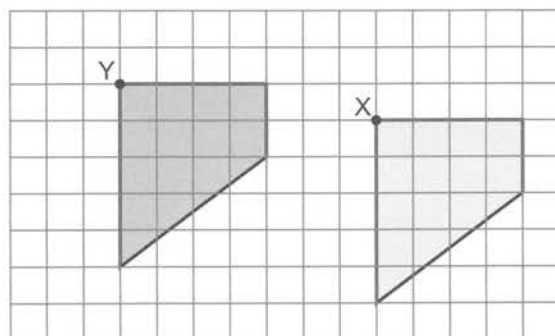
$$\begin{array}{r} 8.80 \\ - 3.80 \\ \hline 5.00 \end{array}$$

$\pounds 1.25 \times 4 = \pounds 5.00$ so they bought
4 sandwiches.

Give **2 marks** if the answer is **4**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

12.



Give **2 marks** if they've translated
the whole shape correctly.

Give **1 mark** if they've only translated
two or three corners correctly.

13. E.g. 22×37 is 37 less than 23×37 , so it's 37 less than 851.
Give **1 mark** for any sensible explanation.

14. Area of grey parts =
area of rectangle – area of white part.
Area of rectangle = $3 \text{ m} \times 2 \text{ m} = 6 \text{ m}^2$
Area of white part = $2 \text{ m} \times 2 \text{ m} = 4 \text{ m}^2$
So area of grey parts = $6 \text{ m}^2 - 4 \text{ m}^2 = 2 \text{ m}^2$
Give **2 marks** if the answer is **2 m²**.
Give **1 mark** if the answer is wrong but they've used a sensible method.

15. Any one of 5 possible pairs:
1 and 2, 1 and 3, 2 and 4, 2 and 6,
or **4 and 8**
Give **1 mark** if one correct pair has been circled.

16. Three and a half hours
= $3 \times 60 + 30$ minutes
= $180 + 30$ minutes = 210 minutes.
Number of complete cakes decorated
= $210 \text{ minutes} \div 16 \text{ minutes}$.

Method 1:

$$\begin{array}{r} 13 \text{ r } 2 \\ 16 \overline{) 210} \\ \underline{-16} \\ 50 \\ \underline{-48} \\ 2 \end{array}$$

Method 2:

$$\begin{array}{r} 13 \text{ r } 2 \\ 16 \overline{) 210} \\ \underline{-208} \\ 2 \end{array}$$

So she could decorate **13** complete cakes.

Give **2 marks** if the answer is **13**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

17. $6 + \bullet \times \heartsuit = 24$,
so $\bullet \times \heartsuit = 24 - 6 = 18$.
So the answers are factor pairs of 18
(not including 6, because the three symbols represent different numbers).

$$\bullet = 1, \heartsuit = 18 \text{ or } \bullet = 18, \heartsuit = 1$$

$$\bullet = 2, \heartsuit = 9 \text{ or } \bullet = 9, \heartsuit = 2$$

Give **1 mark** for each correct pair of numbers.

18. $500 \times 2000 = 1\,000\,000$
So $1\,000\,000 \div 500 = 2000$

19. If he had cycled the same distance on both days, he would have cycled $38 + 12 = 50 \text{ km}$ in total.
So he cycled $50 \div 2 = 25 \text{ km}$ on Saturday.

20. $10\% \text{ of } 90 = 90 \div 10 = 9$
So Tom sold $60\% \text{ of } 90 = 9 \times 6 = 54$ cookies
Scott sold $150 \times \frac{2}{3} = \frac{150 \times 2}{3} = \frac{300}{3} = 100$ cookies

Total number of cookies sold:

$$\begin{array}{r} 54 \\ 100 \\ + 46 \\ \hline 200 \end{array}$$

$$\text{So Dawn sold } \frac{46}{200} = \frac{23}{100} = 23\%$$

Give **3 marks** if the answer is **23%**.

Give **2 marks** if they've worked out that the total number of cookies sold is 200. Give **1 mark** if they've worked out that Tom sold 54 cookies or that Scott sold 100 cookies.

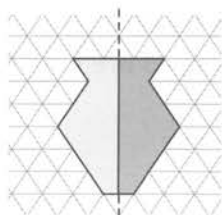
Set A Paper 3: Reasoning

Ask your teacher if you're not sure how many marks to give.

- 1a. **75 238**

- 1b. **486 214**

2.



- 3a. **Canada** because $14^\circ\text{C} - 18^\circ\text{C} = -4^\circ\text{C}$

- 3b. France is 6°C , Finland is -8°C
The difference between 6°C and -8°C is 14°C , so France is **14°C** warmer than Finland.

4. They buy $8 \times 6 = 48$ bottles of water, so in total they have:

$$\begin{array}{r} 679 \\ + 48 \\ \hline 727 \end{array} \text{ bottles}$$

Give **2 marks** if the answer is **727**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

5. $\frac{3}{10}$ and $\frac{8}{10} = \frac{4}{5}$

Give **1 mark** for each correct fraction.

- 6a. Morning News: 8:05 to 8:45 is **40 minutes**
Evening News: 9:50 to 10:25 is **35 minutes**

Give **1 mark** for each correct answer.

- 6b. The morning news finishes
19 minutes after 8:45 am.
19 minutes = 15 minutes + 4 minutes
15 minutes after 8:45 am is 9 am,
and 4 minutes after 9 am is **9:04 am**
(or **4 minutes past 9** or **09:04**).

7. **59, 67**

The sequence is going up in steps of 8.

Give **1 mark** if both numbers are correct.

8.
$$\begin{array}{r} 4\cancel{5}.10 \ 0 \\ - 1.2 \ 0 \\ \hline 3.8 \ 0 \end{array}$$

Four paintbrushes cost £3.80

One paintbrush costs $\text{£}3.80 \div 4 = 380\text{p} \div 4$

$$\begin{array}{r} 9 \ 5 \\ 4 \overline{) 3 \ 8 \ 2 \ 0} \end{array}$$

One paintbrush costs **95p** or **£0.95**

Give **2 marks** if the answer is **95p** or **£0.95**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

9. The radius is half the length of the diameter, so the radius = $22 \div 2 = \mathbf{11 \text{ cm}}$

10. Number of pupils in a class: $16 + 12 = 28$
Number of pupils in the school: 28×23

Method 1:

$$\begin{array}{r} 28 \\ \times 23 \\ \hline 84 \\ 560 \\ \hline 644 \end{array}$$

Method 2:

\times	20	3
20	400	60
8	160	24
	560	84
	644	

So there are **644** pupils in Holly's school.

Give **2 marks** if the answer is **644**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

- 11a. $2 \times 2 \times 7$ (or $2 \times 7 \times 2$)

- 11b. $3 \times 3 \times 5$ (or $5 \times 3 \times 3$)

12. **B**

- 13a. $5 \times (12 - 8) = 5 \times 4 = 20 < 30$

- 13b. $15 + 18 \div 3 = 15 + 6 = 21 > 20$

14. Emily's age = $10 \div 2 + 4$
 $= 5 + 4 = \mathbf{9}$

Give **2 marks** if the answer is **9**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

15. Mean = $(3 + 1 + 2 + 4 + 5) \div 5$
 $= 15 \div 5 = \mathbf{3}$

16. Area of triangle = $\frac{1}{2} \times 5 \times 2$
 $= 5 \text{ units squared.}$

So a correct answer is any rectangle with an area of $3 \times 5 = 15$ units squared.

This could either be a **3 × 5 rectangle** or a **1 × 15 rectangle**.

17. Angles in a triangle add up to 180° , so the total of the two unknown angles is $180^\circ - 40^\circ = 140^\circ$.

As it's an isosceles triangle, the two unknown angles are equal, so $x = 140^\circ \div 2 = \mathbf{70^\circ}$.

18. Total width of tray = $4.2 \times 5 = 21$ cm
 Width of large square = $21 \div 3 = 7$ cm
 Give **2 marks** if the answer is **7 cm**.
 Give **1 mark** if the answer is wrong but they've used a sensible method.

19. Write each fraction with denominator 24:
 $\frac{15}{24}, \frac{9}{6} = \frac{36}{24}, \frac{11}{8} = \frac{33}{24}, \frac{8}{12} = \frac{16}{24}, \frac{7}{4} = \frac{42}{24}$
 In order from largest to smallest:
 $\frac{7}{4}, \frac{9}{6}, \frac{11}{8}, \frac{8}{12}, \frac{15}{24}$

20. Five litres = 5000 ml, so they use
 $5000 \times 2.45 \text{ g} = 5 \times 1000 \times 2.45 \text{ g}$
 $= 5 \times 2450 \text{ g}$

Method 1:

$$\begin{array}{r} 2450 \\ \times 5 \\ \hline 12250 \end{array}$$

Method 2:

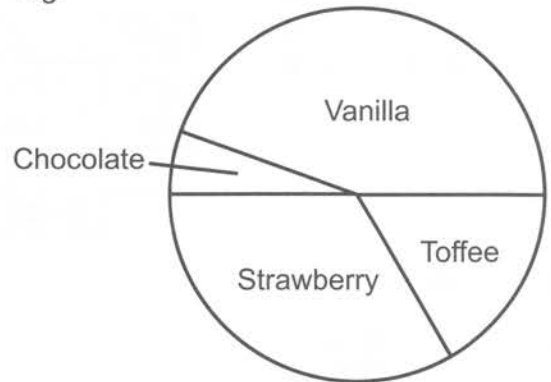
\times	5
2000	10 000
400	2000
50	250
	12 250

So they use **12 250 g**.

Give **2 marks** if the answer is **12 250 g**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

21. $360^\circ \div 90 = 4^\circ$ represents one tub
 Vanilla angle: $40 \times 4^\circ = 160^\circ$
 Chocolate angle: $5 \times 4^\circ = 20^\circ$
 Strawberry angle: $30 \times 4^\circ = 120^\circ$
 Toffee angle: $15 \times 4^\circ = 60^\circ$
 E.g.



Give **2 marks** if they have all the correct angles and labels on the pie chart.

Give **1 mark** if only two flavours have the correct angles and labels.

Set B Paper 1: Arithmetic

Ask your teacher if you're not sure how many marks to give.

1. **572**

2. **3978**

3. **748**

4. **846**

5.
$$\begin{array}{r} 691 \\ + 478 \\ \hline 1169 \end{array}$$

6.
$$6 \overline{) 718}$$

7. **701**

8. $5 \times 6 \times 9 = 30 \times 9 = 270$

9. Method 1:

$$\begin{array}{r} 29 \\ \times 4 \\ \hline 116 \end{array}$$

Method 2:

\times	4
20	80
9	36
	116

10. $64 \div 8 = 8$, so
 $640 \div 8 = 8 \times 10 = 80$

11.
$$\begin{array}{r} 283656 \\ + 37529 \\ \hline 321185 \end{array}$$

8a.

$$\begin{array}{r} 3.88 \\ + 6.13 \\ \hline 10.01 \text{ m} \end{array}$$

8b.

$$\begin{array}{r} 5\cancel{8}.13 \\ - 3.90 \\ \hline 2.23 \text{ m} \end{array}$$

9. Angles around a point add up to 360° , so:
 $x = 360^\circ - 130^\circ - 90^\circ - 25^\circ = 115^\circ$

10a. $3^2 + 4^2 = 9 + 16 = 25$

10b. **Yes**, because $5^2 = 25$.
 Give **1 mark** if **Yes** is ticked **and** they've explained that $5^2 = 25$.

11. 1 bag of sugar weighs $2400 \text{ g} \div 8 = 300 \text{ g}$
 3 bags weigh $3 \times 300 \text{ g} = 900 \text{ g}$
 $2400 \text{ g} - 900 \text{ g} = 1500 \text{ g}$
 Give **2 marks** if the answer is **1500 g**.
 Give **1 mark** if the answer is wrong but they've used a sensible method.

12. 5 miles \approx 8 km.
 15 miles is 3 lots of 5 miles,
 so find 3 lots of 8 km: $3 \times 8 = 24 \text{ km}$

13. Money left after buying shirt:

$$\begin{array}{r} 2\cancel{5}.150 \\ - 13.80 \\ \hline 11.70 \end{array}$$

 Cost of lunch = $\text{£}11.70 \div 3 = 1170\text{p} \div 3$

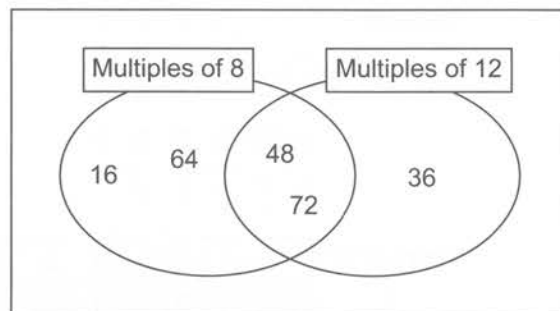
$$\begin{array}{r} 390 \\ 3 \overline{) 1170} \end{array}$$

 1170 is 100 times bigger than 11.70,
 so divide by 100 to get the answer.
 $390 \div 100 = \text{£}3.90$

Give **2 marks** if the answer is **£3.90**.
 Give **1 mark** if the answer is wrong but they've used a sensible method.

14. As decimals the numbers are:
 $0.09, \frac{43}{50} = \frac{86}{100} = 0.86, 85\% = 0.85, 0.8$
 So $\frac{43}{50}$ is closest to 1.

15.



Give **2 marks** if all the numbers are in the correct areas. Give **1 mark** if only three or four numbers are in the correct areas.

16. Subtract 2: $3.2 - 2 = 1.2$
 Multiply by 5: $1.2 \times 5 = 6$
 Divide by 3: $6 \div 3 = 2$

Give **2 marks** if the answer is **2**.
 Give **1 mark** if the answer is wrong but they've used a sensible method.

17. 1 tile has area $6 \text{ cm} \times 10 \text{ cm} = 60 \text{ cm}^2$
 $720 \div 60 = 72 \div 6 = 12$ tiles

Give **2 marks** if the answer is **12**.
 Give **1 mark** if the answer is wrong but they've used a sensible method.

18. $\frac{5}{7} \div 3 = \frac{5}{7 \times 3} = \frac{5}{21} \text{ m}$

19. There are $3 + 4 = 7$ shares in total
 1 share is $56 \div 7 = 8$ sweets
 So there are $3 \times 8 = 24$ gobstoppers
 and $4 \times 8 = 32$ sherbet lemons
 Give **2 marks** if they got **24** gobstoppers **and** **32** sherbet lemons.
 Give **1 mark** if one answer is correct, or if they worked out that one share is 8 sweets.

20. Find the number of boxes of coat hangers.

Method 1:

$$\begin{array}{r} 42 \\ 26 \overline{) 1092} \\ \underline{- 104} \\ 52 \\ \underline{- 52} \\ 0 \end{array}$$

Method 2:

$$\begin{array}{r} 42 \\ 26 \overline{) 1092} \end{array}$$

Number of piles = $42 \div 6 = 7$

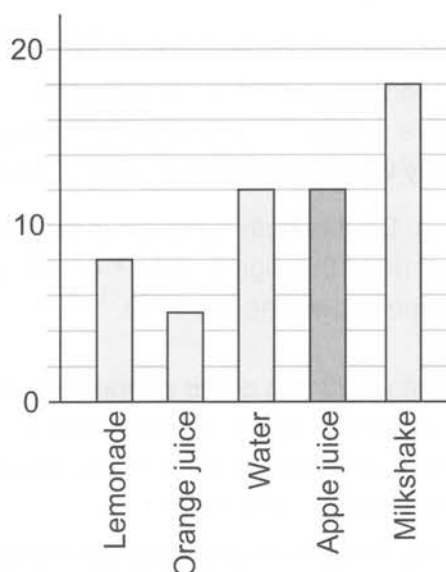
Give **3 marks** if the answer is **7**.
 Give **2 marks** if the answer is wrong but they divided by 26 and got 42, or if they tried to divide twice. Give **1 mark** if they only tried to divide by 26, but didn't get 42.

Set B Paper 3: Reasoning

Ask your teacher if you're not sure how many marks to give.

1. **367**

2a.



2b. $5 + 8 = 13$

3. **False.** An odd number subtracted from another odd number will always give an even number, e.g. $17 - 5 = 12$.

Give **1 mark** if **False** is ticked **and** they've explained that odd – odd = even.

4. VIII = 8 and IX = 9, so the times could be **08:30** or **20:30**

$$\begin{array}{r} 9 \times 6 = 54 \\ 1 \overset{7}{\cancel{8}} \overset{1}{0} \\ - \quad 5 \quad 4 \\ \hline 1 \quad 2 \quad 6 \text{ muffins} \end{array}$$

Give **2 marks** if the answer is **126**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

6a. 09:37 to 09:56 is **19 minutes**

6b. 14 minutes after 11:48 am is **12:02 pm**

7. **0.7** and **0.09**

Give **1 mark** if **both** numbers are correct (the order doesn't matter).

8a. **1, 3, 5, 9, 15, 45**

8b. E.g. 45 has factors other than 1 and itself, so it can't be a prime number.

Give **1 mark** for any sensible explanation.

9. Method 1:

6 bottles cost £3.12,

so 2 bottles cost $£3.12 \div 3 = £1.04$

Yoghurt costs $£1.73 - £1.04 = \text{£}0.69$ or **69p**

Method 2:

1 bottle costs $£3.12 \div 6 = £0.52$

2 bottles cost $£0.52 \times 2 = £1.04$

Yoghurt costs $£1.73 - £1.04 = \text{£}0.69$ or **69p**

Give **2 marks** if the answer is **£0.69** or **69p**. Give **1 mark** if the answer is wrong but they've used a sensible method.

10a. $12 \times 20 = 240$

10b. $60 \times 30 = 1800$

11. $£34.65 = 3465p$

$$\begin{array}{r} 4 \quad 9 \quad 5 \\ 7 \overline{) 3 \quad 4 \quad 6 \quad 5} \end{array}$$

So each lesson costs 495p or **£4.95**

12a. **May** and **September**

12b. $16 - 8 = 8^\circ\text{C}$

13a. $\spadesuit = 24 \div 6 = 4$

13b. $3\clubsuit = 75 - 6 = 69$

$\clubsuit = 69 \div 3 = 23$

14a. $£15 + £6 \times 4 = £15 + £24 = \text{£}39$

14b. $£27 = £15 + £6 \times \text{number of hours hired}$

$£27 - £15 = £6 \times \text{number of hours hired}$

$£12 = £6 \times \text{number of hours hired}$

$12 \div 6 = 2$, so she hired the canoe for **2 hours**.

Give **2 marks** if the answer is **2**.

Give **1 mark** if the answer is wrong but they've used a sensible method.

15. $48 \div 8 = 6$

16. Angles on a straight line add up to 180° ,
so angle $g = 180^\circ - 130^\circ = 50^\circ$
Total of known angles in trapezium
 $= 110^\circ + 70^\circ + 50^\circ = 230^\circ$
Angles in a quadrilateral add up to 360° ,
so angle $h = 360^\circ - 230^\circ = 130^\circ$
Give **1 mark** if angle g is correct
and **1 mark** if angle h is correct.
17. $\frac{2}{3} - \frac{1}{12} = \frac{8}{12} - \frac{1}{12} = \frac{7}{12}$
18. Width of white cuboid
 $= 8 \text{ mm} - 5 \text{ mm} = 3 \text{ mm}$
Volume of white cuboid
 $= 7 \times 3 \times 10 = 210 \text{ mm}^3$
Height of shaded cuboid
 $= 7 \text{ mm} - 5 \text{ mm} = 2 \text{ mm}$
Volume of shaded cuboid
 $= 2 \times 5 \times 10 = 100 \text{ mm}^3$
Total volume $= 210 + 100 = 310 \text{ mm}^3$
Give **2 marks** if the answer is **310 mm^3** .
Give **1 mark** if the answer is wrong but
they've got 210 mm^3 for the white cuboid
or 100 mm^3 for the shaded cuboid.
19. $10\% \text{ of } 120 = 120 \div 10 = 12$
 $30\% \text{ of } 120 = 12 \times 3 = 36$
 $5\% \text{ of } 120 = 12 \div 2 = 6$
 $35\% \text{ of } 120 = 36 + 6 = 42$
Remaining grapes $= 120 - 42 = 78$
$$\begin{array}{r} 26 \\ 3 \overline{) 78} \end{array}$$

So each of her friends gets **26** grapes.
Give **2 marks** if the answer is **26**.
Give **1 mark** if the answer is wrong but
they've worked out that 35% of 120 is 42.
20. E.g. Double both numbers in the division to
get rid of the digit 2: $874 \div 46$ will give the
same answer as $437 \div 23$.
Or
Split up 23 into a pair of numbers that don't
contain the digit 2, such as $19 + 4$,
then use brackets to do the addition before
the division: $437 \div (19 + 4)$.
Give **1 mark** for any sensible explanation.
- 21a. Point A is 6 units to the left of point B,
so point D is 6 units to the left of point C.
The x-coordinate of point D is $7 - 6 = 1$.
Point D has the same y-coordinate
as point C.
So the coordinates of point D are **(1, -6)**.
- 21b. Point X is the mirror image of point A.
Point A is 2 units to the right of the y-axis,
so point X is 2 units to the left of the y-axis.
Its x-coordinate is -2. Point X has the
same y-coordinate as point A.
So the coordinates of point X are **(-2, -2)**.