



# Mathematics

**SATs  
Practice  
Papers**

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*The answers can be found in a pull-out section in the middle of this book.*

# Introduction

## About the Practice Papers for Mathematics

The tests are written to cover the content domain of the *Key Stage 2 Mathematics test framework for the National Curriculum tests from 2016* (Standards & Testing Agency, 2015).

There are six tests in total, two assessing arithmetic (as per Paper 1 of the National Tests) and four assessing mathematical fluency, solving problems and reasoning (as per Papers 2 and 3 of the National Tests). The practice papers are intended for use during the spring and summer terms of Year 6 in preparation for the National Tests. Each Paper 1 (arithmetic) is worth 40 marks and each Paper 2 or Paper 3 (reasoning) is worth 35 marks. Test demand increases within each test, as in the National Tests, so initial questions are easier than those towards the end of each test.

## How to use the Practice Papers

### *Preparation and timings*

- 1 Make enough copies of the test(s) for each child to have their own copy.
- 2 Hand out the papers and ensure children are seated appropriately so that they can't see each other's papers.
- 3 Children will need pens or pencils, rulers and erasers. Angle measurers or protractors, and mirrors, should be available for the *Reasoning tests*. Encourage children to cross out answers rather than rub them out.  
**Calculators must not be used in the tests.** Tracing paper is no longer allowed to be used in the KS2 National Tests.
- 4 There are no time limits for the tests but you should be guided by the timings of the actual tests in relation to the number of marks available. Help with reading may be given using the same rules as when providing a reader with the Key Stage 2 tests.

## Supporting children during the tests

Before the tests, explain to the children that each test is an opportunity to show what they know, understand and can do. They should try to answer all the questions but should not worry if there are some they can't do.

Many children will be able to work independently in the tests, with minimal support. However, children should be encouraged to 'have a go' at a question, or to move on to a new question if they appear to be stuck.

## Marking the tests

Use the mark scheme and your professional judgement to award marks. Do not award half marks. Note that a number of questions in each test may require children to do more than one thing for one mark. The mark scheme provides clear guidance in the allocation of marks to support consistent marking of the tests.

It is useful to use peer marking of test questions from time to time. Children should exchange test sheets and mark them as you read out the question and answer. You will need to check that children are marking accurately. This approach also provides an opportunity to recap on any questions that children found difficult to answer and will help to identify areas of strength or weakness. This can then help support revision planning.

Name:

Class:

Date:

Total marks: /40

# Test 1, Paper 1: Arithmetic

**1**

$895 + 200 =$

1 mark

**2**

$120 \times 5 =$

1 mark

**3**

$98 + 412 =$

1 mark

/3

Total for  
this page

4

$$\frac{5}{9} + \frac{3}{9} =$$

1 mark

5

$$425 + 100 =$$

1 mark

6

$$568 - 9 =$$

1 mark

/3

Total for  
this page

7

7

$572 \div 1 =$

A large grid of 20 columns and 10 rows, intended for students to show their working for the calculation  $572 \div 1$ .

1 mark

8

$455 \times 4 =$

A large grid of 20 columns and 10 rows, intended for students to show their working for the calculation  $455 \times 4$ .

1 mark

9

$3.7 + 0.9 =$

A large grid of 20 columns and 10 rows, intended for students to show their working for the calculation  $3.7 + 0.9$ .

1 mark



10

$108 \div 9 =$

1 mark

11

$1,349 \times 4 =$

1 mark

12

$60 + 1,000 =$

1 mark

/3

Total for  
this page

**13**  $5,752 - 2,753 =$

A large grid of 20 columns and 10 rows for working out the subtraction problem. A rectangular box is drawn at the bottom right of the grid, spanning 6 columns and 2 rows, intended for the final answer.

1 mark

**14**  $\frac{4}{5}$  of 550 =

A large grid of 20 columns and 10 rows for working out the fraction problem. A rectangular box is drawn at the bottom right of the grid, spanning 6 columns and 2 rows, intended for the final answer.

1 mark

**15**  $6^2 =$

A large grid of 20 columns and 10 rows for working out the power problem. A rectangular box is drawn at the bottom right of the grid, spanning 6 columns and 2 rows, intended for the final answer.

1 mark

/3

Total for  
this page

16

$$\frac{7}{8} - \frac{3}{8} =$$

1 mark

17

$$14.56 \times 100 =$$

1 mark

18

$$45,000 - 800 =$$

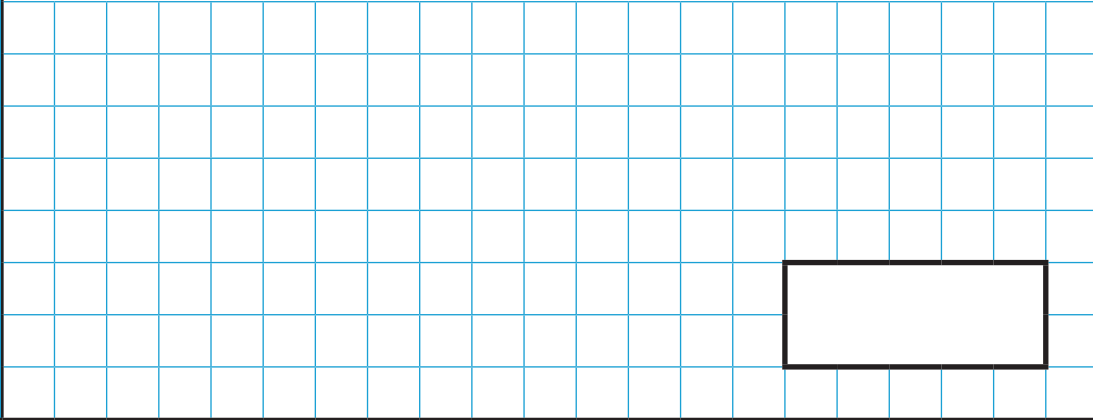
1 mark

/3

Total for  
this page

19

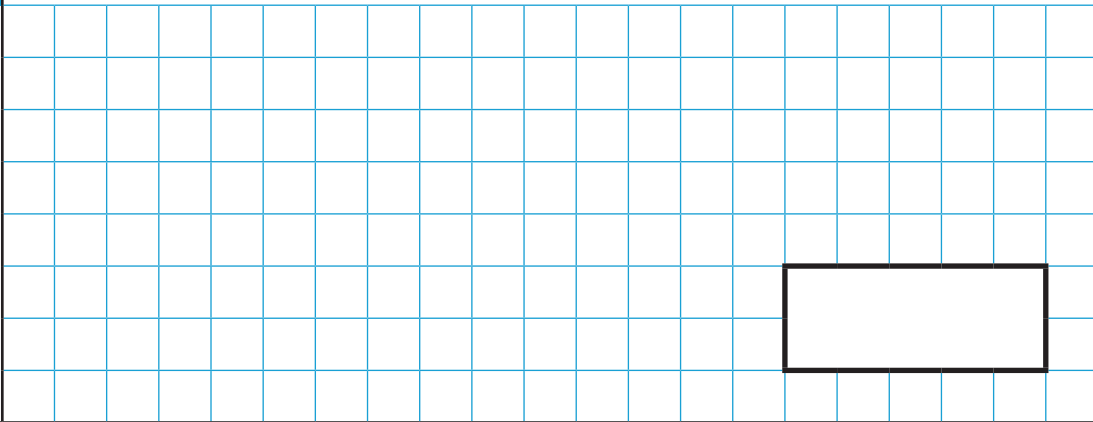
$6 - 2.15 =$



1 mark

20

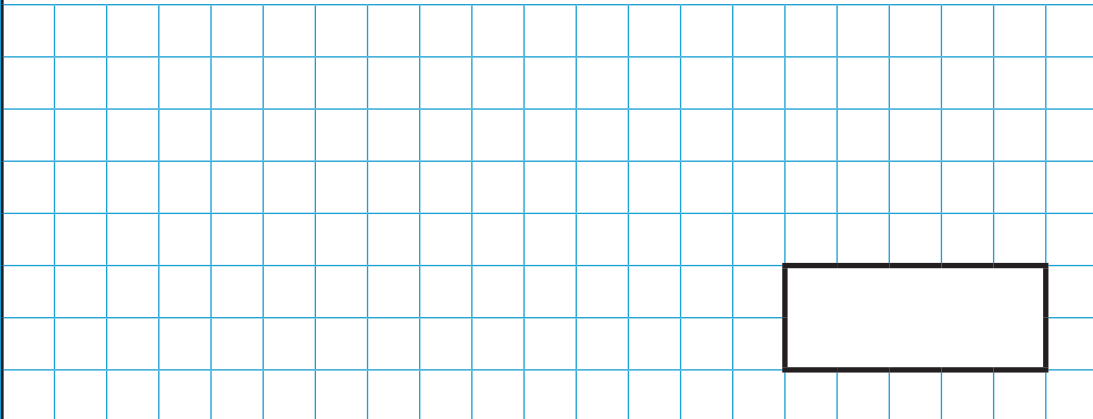
$3,974 \times 24 =$

Show  
your  
method

2 marks

21

$25\% \text{ of } 700 =$



1 mark

/4

Total for  
this page

**22**  $4,782 \div 6 =$

A large grid for working out the division problem. The grid is 20 squares wide and 15 squares high. A rectangular box for the answer is located in the bottom right corner of the grid, spanning 5 squares wide and 2 squares high.

1 mark

**23**  $2.45 \times 5 =$

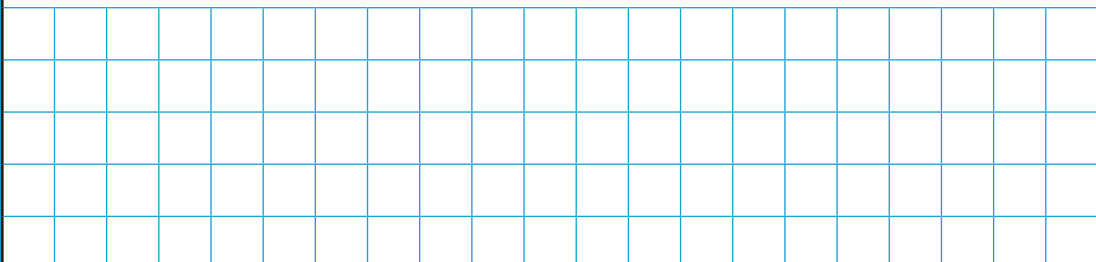
A large grid for working out the multiplication problem. The grid is 20 squares wide and 15 squares high. A rectangular box for the answer is located in the bottom right corner of the grid, spanning 5 squares wide and 2 squares high.

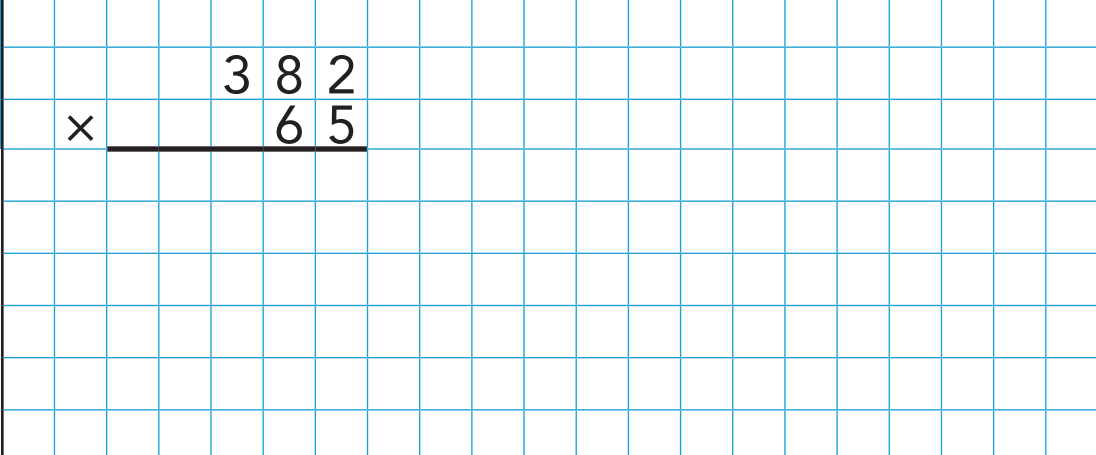
1 mark

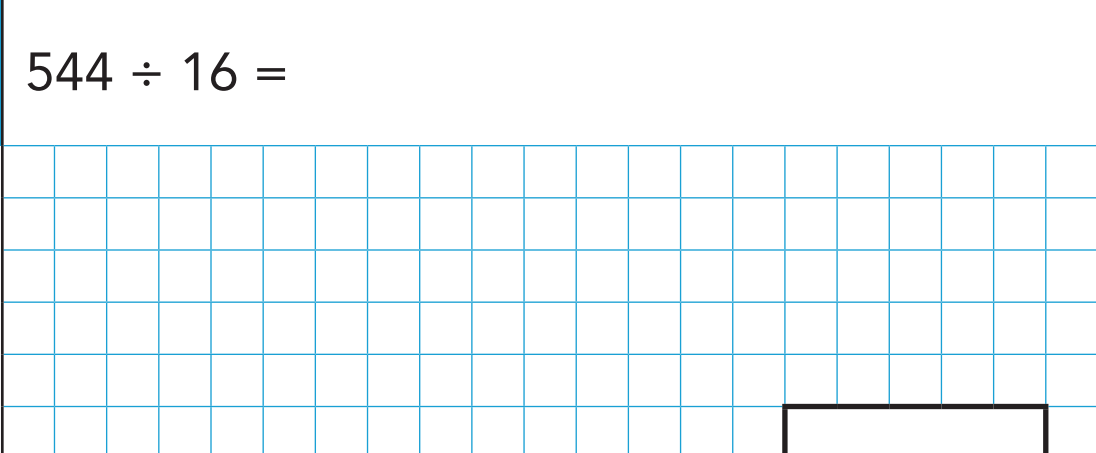
**24**  $3\frac{4}{5} + \frac{9}{10} =$

A large grid for working out the addition problem. The grid is 20 squares wide and 15 squares high. A rectangular box for the answer is located in the bottom right corner of the grid, spanning 5 squares wide and 2 squares high.

1 mark

|  |                    |   |
|--|--------------------|---|
| <b>25</b>  | $80,608 - 3,577 =$ | <input style="width: 40px; height: 20px; margin: 0 auto;" type="text"/><br>1 mark |
|  |                    |   |
| <input style="width: 150px; height: 30px; border: 1px solid black;" type="text"/>  |                    |   |

|   |   |  |
|---|---|--|
| <b>26</b>   | $\begin{array}{r} 382 \\ \times 65 \\ \hline \end{array}$                           | <input style="width: 40px; height: 20px; margin: 0 auto;" type="text"/><br>2 marks |
| Show your method  |  |  |
| <input style="width: 150px; height: 30px; border: 1px solid black;" type="text"/> |   |  |

|   |  |  |
|---|--|--|
| <b>27</b>   | $544 \div 16 =$  | <input style="width: 40px; height: 20px; margin: 0 auto;" type="text"/><br>2 marks |
| Show your method  |  |  |
| <input style="width: 150px; height: 30px; border: 1px solid black;" type="text"/> |  |  |

/5

Total for this page

28

$$98,794 + 5,385 =$$



1 mark

29

$$17 \overline{) 9656}$$

Show  
your  
method



2 marks

30

$$\frac{3}{5} \div 2 =$$



1 mark

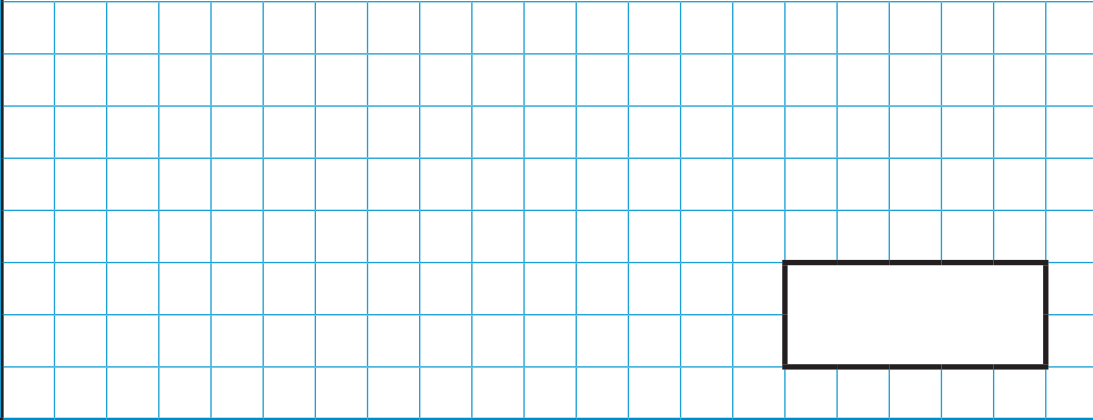
/ 4

Total for  
this page

15

31

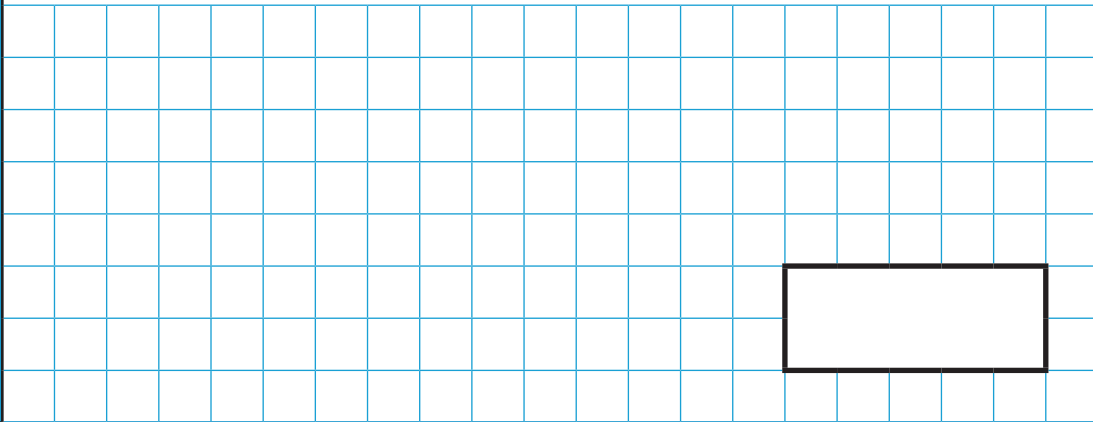
$$100 + 4 \times 5 =$$



1 mark

32

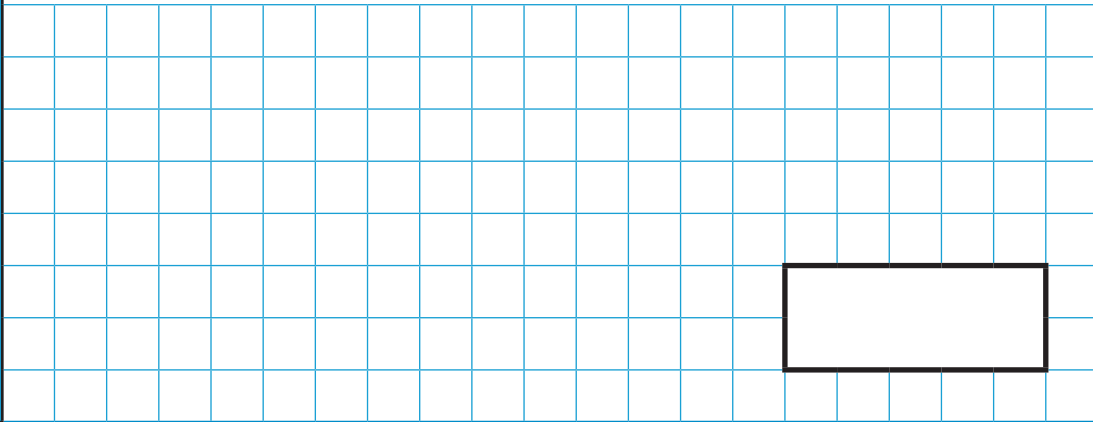
$$\frac{2}{5} \times \frac{3}{4} =$$



1 mark

33

$$1\frac{3}{4} - \frac{4}{5} =$$



1 mark

/3

Total for  
this page



34

$$1,440 \div 12 =$$

A large grid for working out the answer to question 34. The grid is 20 squares wide and 15 squares high. A rectangular box for the answer is located in the bottom right corner of the grid, spanning 5 squares wide and 2 squares high.

1 mark

35

$$30\% \text{ of } 2,700 =$$

A large grid for working out the answer to question 35. The grid is 20 squares wide and 15 squares high. A rectangular box for the answer is located in the bottom right corner of the grid, spanning 5 squares wide and 2 squares high.

1 mark

36

$$\frac{5}{8} \div 24 =$$

A large grid for working out the answer to question 36. The grid is 20 squares wide and 15 squares high. A rectangular box for the answer is located in the bottom right corner of the grid, spanning 5 squares wide and 2 squares high.

1 mark

/3

Total for  
this page

Name:

Class:

Date:

Total marks: /35

# Test 2, Paper 3: Reasoning

1

Draw lines to match the number that has a digit with each value shown.

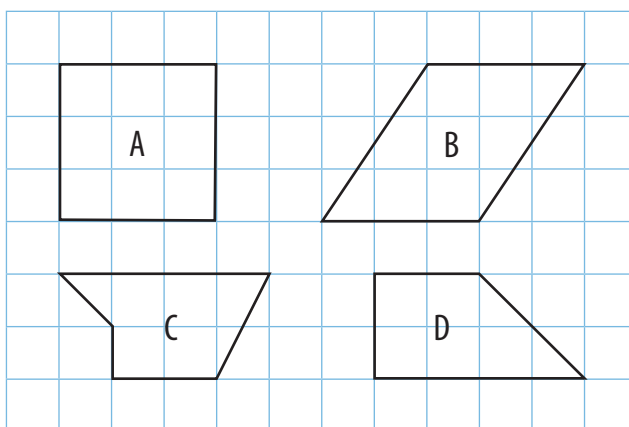
One has been done for you.

|              |           |
|--------------|-----------|
| 4 thousand   | 204,735   |
| 600 thousand | 445,844   |
| 40 thousand  | 6,465,675 |
| 6 million    | 1,635,420 |

1 mark

2

Write the letter of the shape that has one pair of parallel sides **and** one pair of perpendicular sides.




1 mark

/2

Total for  
this page

3

Ben and Eli are playing a computer game.

Their target score is 9,999 points.

They have scored 4,028 points on Level 1 and 3,986 points on Level 2.

How many points do they need to score on Level 3 to reach their target?

Show your method

2 marks

4

Circle the numbers that are **greater than** 45,500

45,499      45,501      50,000      45,050

1 mark

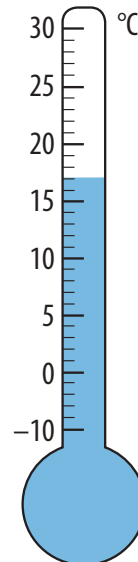
5

This thermometer shows the temperature inside.

The temperature outside is 20°C **lower**.

Circle the temperature outside.

20°C    0°C    -7°C    17°C    -3°C




1 mark

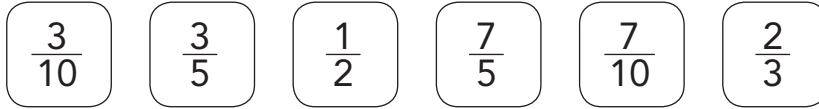
Total for this page



8

Here are some fraction cards.

Choose the correct fraction cards to complete the calculations.



a)  +  =  $1\frac{1}{5}$

b)  -  =  $1\frac{1}{10}$

1 mark

1 mark

9

A library has 120 books.  $\frac{2}{5}$  of the books are non-fiction.

How many books are non-fiction?

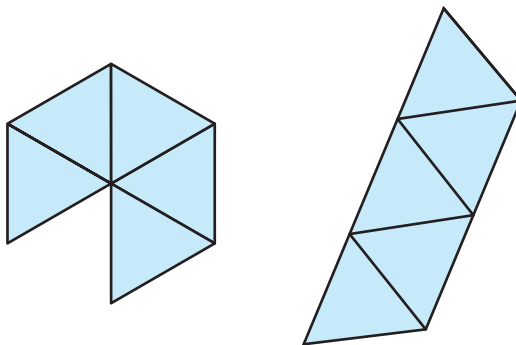
1 mark

10

These two shapes are made from equilateral triangles.

Draw one line of symmetry on each shape.

Use a ruler.




1 mark

/4

Total for this page

11

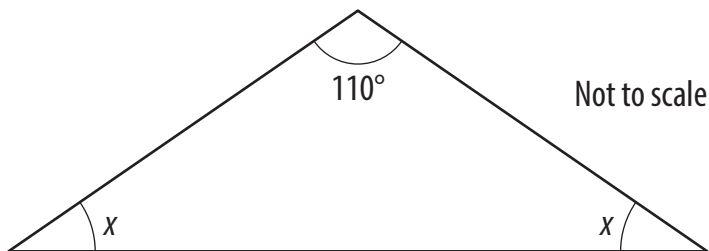
This table shows the mass of some fruit and vegetables.  
Complete the table.

| Fruits and vegetables | Grams | Kilograms |
|-----------------------|-------|-----------|
| potatoes              | 5,500 | 5.5       |
| apples                |       | 2.5       |
| grapes                |       | 0.35      |
| ginger                | 60    |           |

2 marks

12

Here is an isosceles triangle.



Calculate the size of angle  $x$ .

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



1 mark

/3

Total for  
this page



15

Use the digit cards to complete the subtraction calculation.

Each card can be used only once.



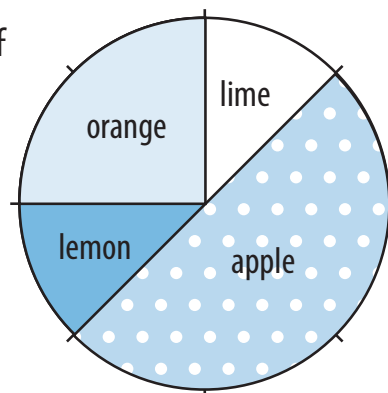
$$\square\square\square - \square\square\square = 385$$

1 mark

16

The pie chart compares the amount of different fruit juices sold at a café.

The café owner thinks that the amount of lime and lemon juice sold altogether is equal to the amount of orange juice sold.



Do you agree?

Circle your answer. YES / NO

Explain your answer.

---



---



---



1 mark

17

36 and 64 are both square numbers.

They have a sum of 100

Find two **square** numbers that have a sum of **160**

and

1 mark

/3

Total for this page



18

Round 3.485:

a) to the nearest whole number

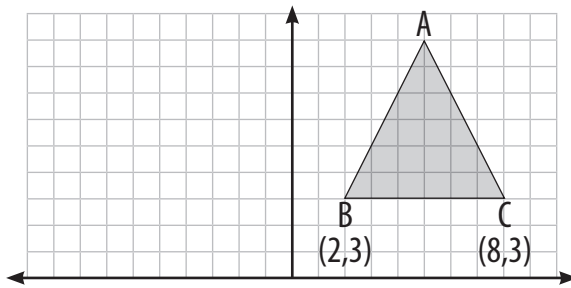
b) to the nearest tenth ( $\frac{1}{10}$ )

c) to the nearest hundredth ( $\frac{1}{100}$ )

1 mark

19

Purba draws an isosceles triangle.



a) Write the coordinates of vertex **A**.

b) Purba translates the triangle 6 squares left and 2 squares down.

Write the coordinates of vertex **B** and vertex **C** **after** the translation.

**B**  **C**

1 mark

1 mark

/3

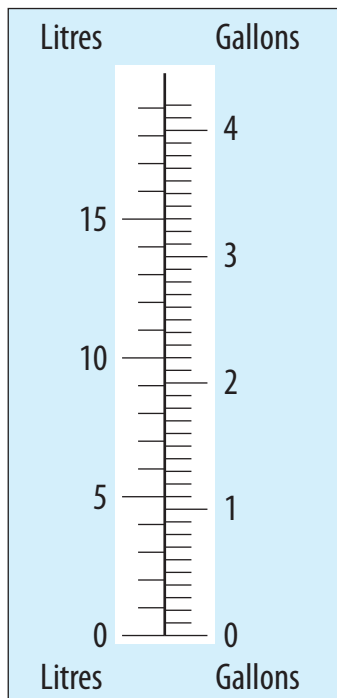
Total for this page

20

Gemma uses a map to plan her journey.  
 On the map, the distance of her journey is 25 cm.  
 The scale on the map is 2.5 cm = 5 km.  
 How far will Gemma travel on her journey?  km

1 mark

21



a) Approximately how many **litres** are there in **2 gallons**?

Give your answer to the nearest litre.  litres

1 mark

b) Approximately how many **gallons** are there in **5 litres**?

Give your answer to **1 decimal place**.  gallons

1 mark

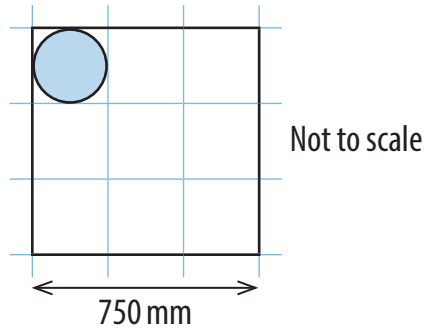
/3

Total for  
this page

22

The black square has sides of 750 mm.

Calculate the radius of the circle in **cm**.



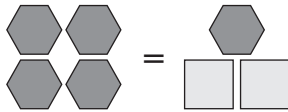
Show your method

cm

2 marks

23

Lena uses these symbols to show an equivalence.



The value of  is 1.2

Calculate the value of .

Show your method

2 marks

/4

Total for this page