

2022 national curriculum tests

Key stage 2

Mathematics

Paper 2: reasoning

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



K 0 0 0 7 0 A 0 1 2 4

[BLANK PAGE]

Please do not write on this page.



Instructions

You **must not** use a calculator to answer any questions in this test.

Questions and answers

You have **40 minutes** to complete this test.

Follow the instructions for each question.

Work as quickly and as carefully as you can.

If you need to do working out, you can use the space around the question.

Do not write over any barcodes.

Some questions have a method box like this:

Show your method

For these questions, you may get a mark for showing your method.

If you cannot do a question, **go on to the next one.**

You can come back to it later, if you have time.

If you finish before the end, **go back and check your work.**

Marks

The number under each line at the side of the page tells you the number of marks available for each question.



1

Circle the **greatest** number.

9,206,499

9,215,300

9,206,504

9,215,298

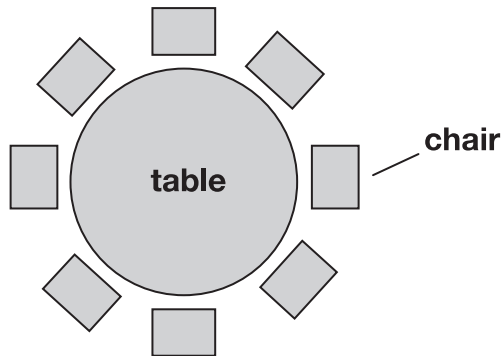
9,206,909

1 mark



2

One table can seat 8 people.



How many tables are needed to seat 40 people?

tables

1 mark

3

Write the missing number to make this **addition** correct.

$$400,000 + \boxed{} + 70 = 430,070$$

1 mark



K 0 0 0 7 0 A 0 5 2 4

4

Children estimated the number of beans in a jar.

These were the estimates of five children.

Amir	1,310
Olivia	1,220
Emma	1,400
John	1,290
Chen	1,460

The exact number of beans in the jar was **1,380**

Whose estimate was **closest** to the exact number?

1 mark

Whose estimate was **furthest** from the exact number?

1 mark



5

One tonne is 1,000 kilograms.

A truck can carry a load of 2.3 tonnes.

How many **kilograms** can the truck carry?

kg

1 mark

6

Emma has a 5 litre bag of compost.



She uses 2.75 litres.

How much compost does Emma have left?

litres

1 mark



K 0 0 0 7 0 A 0 7 2 4

7

In a race, Ali completes a swim, a run and a bicycle ride.

The swim is $\frac{1}{10}$ of the total distance.

The run is $\frac{3}{10}$ of the total distance.

What fraction of the total distance is the **bicycle ride**?

1 mark

8

Circle the improper fraction that is equivalent to $2\frac{3}{8}$

$$\frac{5}{8}$$

$$\frac{14}{8}$$

$$\frac{19}{8}$$

$$\frac{23}{8}$$

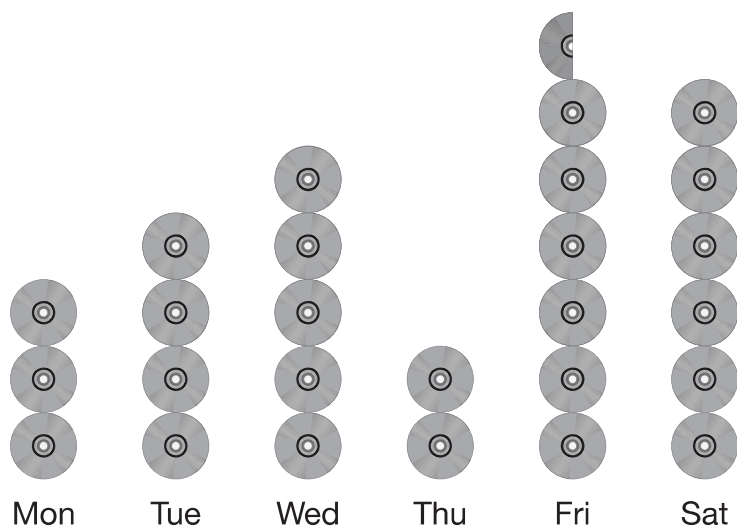
$$\frac{26}{8}$$

1 mark



9

This pictogram shows how many DVDs a shop sells in one week.



On **Monday**, 24 DVDs were sold.

How many DVDs were sold on **Friday**?

1 mark



10

A shop has an offer.



Buy one box for £1.90

Get the second box half price.

Ali buys two boxes of cereal.

How much must he pay **altogether**?

Show
your
method

£

2 marks



11

Write the missing values.

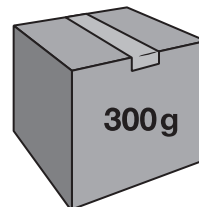
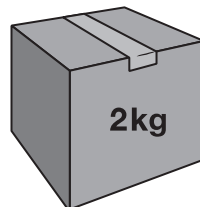
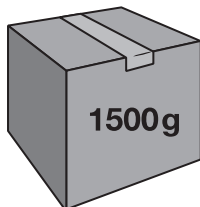
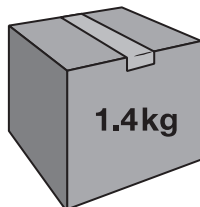
$$\frac{3}{10} = \frac{\boxed{}}{20}$$

$$\frac{12}{15} = \frac{4}{\boxed{}}$$

1 mark

12

William has four parcels.

Write the masses in order, starting with the **heaviest**.

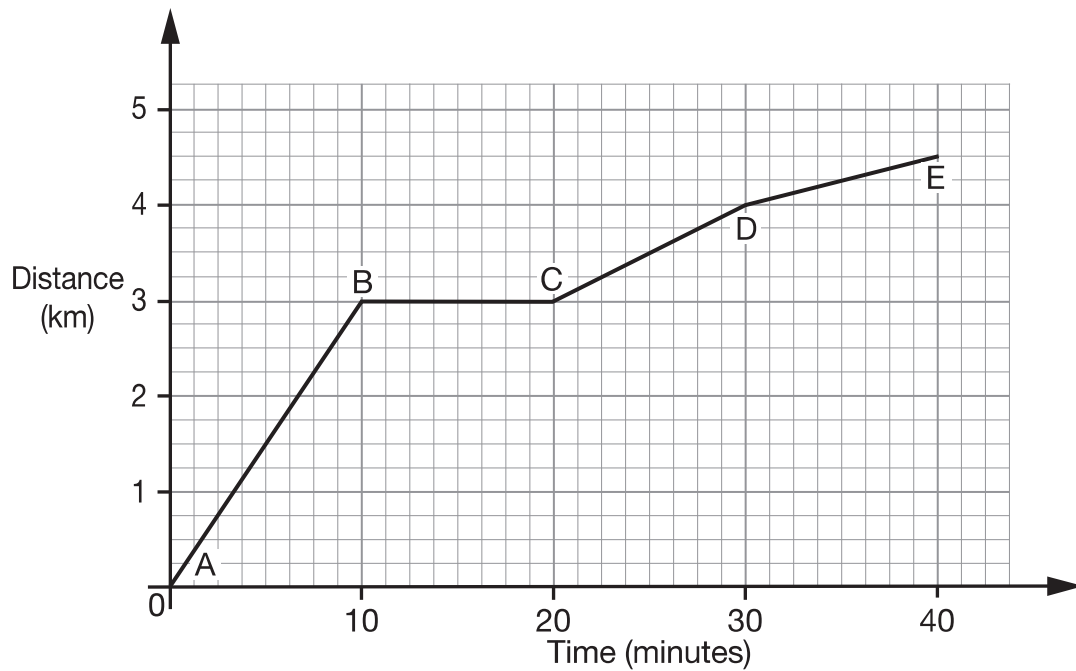
heaviest

1 mark



13

Look at the graph below that shows Dev's bike ride.



Match each part of Dev's journey to the correct sentence.

A to B

Dev rests for 10 minutes.

B to C

Dev cycles 1 km in 10 minutes.

C to D

Dev cycles 3 km in 10 minutes.

D to E

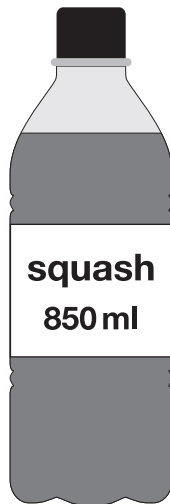
Dev cycles less than 1 km in 10 minutes.

1 mark



14

This 850ml bottle of squash makes 17 drinks.



How many millilitres of squash are in each drink?

 ml

1 mark

15

Write the correct sign =, > or < in each box.

$1 \times 2 \times 3$

$1 + 2 + 3$

$2 \times 2 \times 2$

$2 + 2 + 2$

$1 \times 10 \times 10$

$1 + 10 + 10$

$0 \times 10 \times 10$

$0 + 10 + 10$

2 marks



16

Tick the numbers that round to 28.7

28.07

☐

28.65

☐

28.71

☐

28.75

☐

28.97

☐

1 mark

17

6 divides into 40 with a remainder of 4

Write **one** other number that divides into 40 with a remainder of 4

1 mark



18

This sign shows the number of **empty spaces** on each level of a car park at 10 am.

P	Empty Spaces	
Level 2	511	
Level 1	268	

In this car park, **each** level has 800 spaces.

What is the total number of cars **parked** in the car park at 10 am?

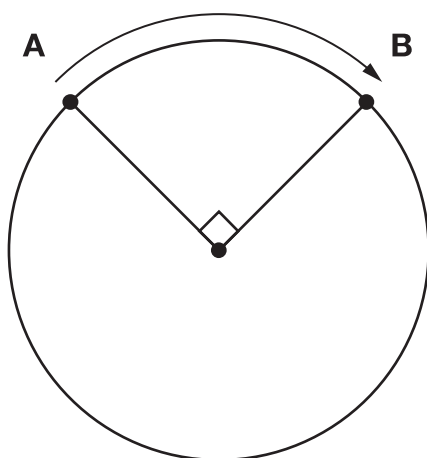
Show
your
method

2 marks



19

The **circumference** of this circle is 60 centimetres.



Not
actual
size

What is the distance around the edge of the circle from **A** to **B**?

cm

1 mark



20

There are 432 places at a dance school.

There are two age groups.

This table shows the number of classes and the number of pupils in each class for each age group at the moment.

Age in years	Number of classes	Number of pupils in each class
7–12	15	16
13–18	10	18

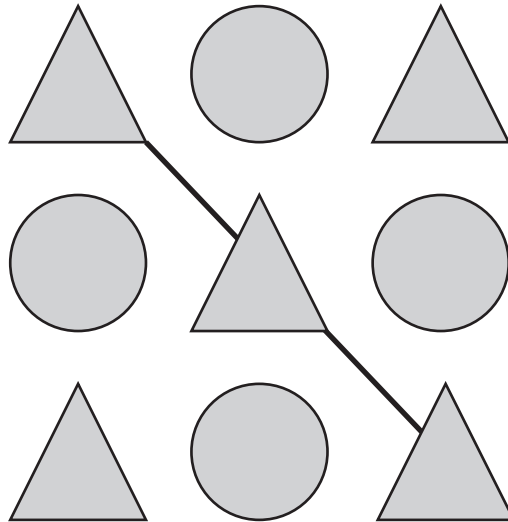
How many **more** pupils can join the dance school?

Show
your
method

2 marks



K 0 0 0 7 0 A 0 1 7 2 4

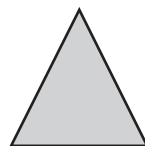


Each shape stands for a number.

The total of the shapes on the diagonal line is 48

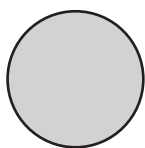
The total of all the shapes is 200

Calculate the value of each shape.



=

1 mark



=

1 mark



22

You can make green paint by mixing:

- 250 ml of blue paint
- 1,150 ml of yellow paint.

Stefan wants to make some of this green paint.

He uses 750 ml of **blue** paint.

How much **green** paint does he make?

Show
your
method

A large grid for showing the method. A small box labeled 'ml' is provided for the answer.

2 marks



23

Adam has a bag of fruit that weighs **1.25 kilograms**.



He takes out a banana. Now the bag of fruit weighs **1.1 kg**.

Next, he takes out an orange. Now the bag weighs **920 g**.

How much **more** does the orange weigh than the banana?

Show your method

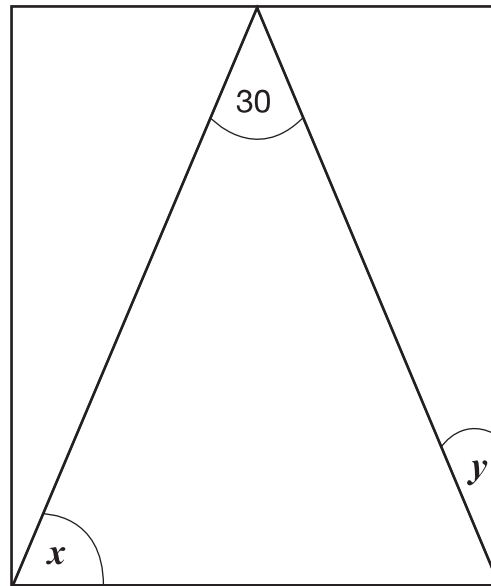


2 marks



24

Here is an **isosceles** triangle inside a rectangle.



Not to
scale

Calculate the sizes of angles x and y .

Show
your
method

$x =$

°

$y =$

°

2 marks

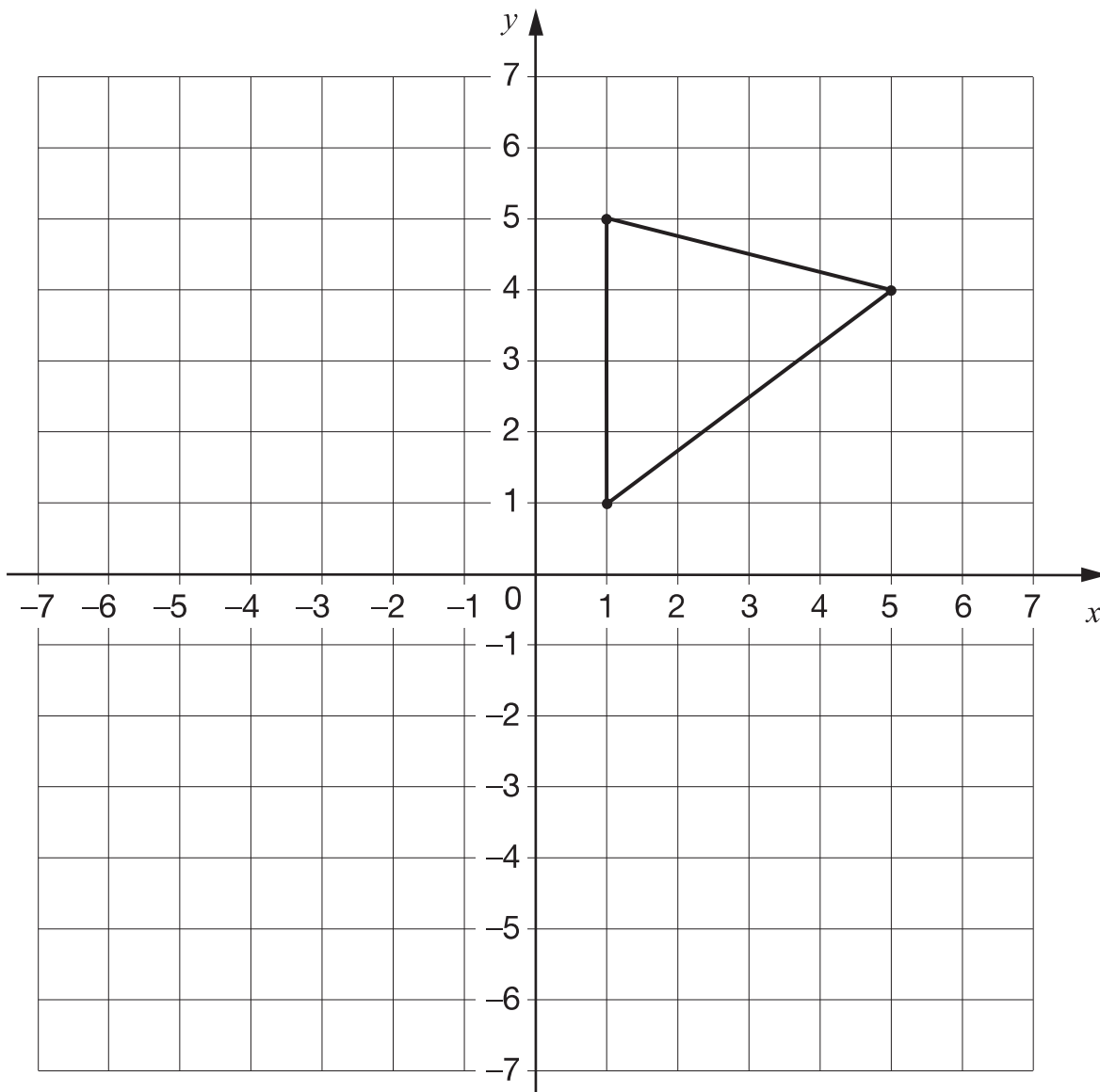


25

The triangle is to be transformed on the grid as follows:

- First translate the shape 7 units down.
- Then reflect the **resulting** triangle in the y -axis.

Draw the new triangle on the grid after **each** transformation.



Use a ruler.

2 marks



[END OF TEST]

Please do not write on this page.





Standards
& Testing
Agency

2022 key stage 2 mathematics

Paper 2: reasoning

Print version product code: STA/22/8418/p ISBN: 978-1-78957-266-7

Electronic PDF version product code: STA/22/8418/e ISBN: 978-1-78957-287-2

For more copies

Additional copies of this book are not available during the test window.

They can be downloaded afterwards from

<https://www.gov.uk/government/collections/national-curriculum-assessments-practice-materials>.

© Crown copyright 2022

Re-use of Crown copyright in test materials

Subject to the exceptions listed below, the test materials on this website are Crown copyright and you may re-use them (not including logos) free of charge in any format or medium in accordance with the terms of the Open Government Licence v3.0 which can be found on the National Archives website and accessed via the following link: www.nationalarchives.gov.uk/doc/open-government-licence. When you use this information under the Open Government Licence v3.0, you should include the following attribution: 'Contains material developed by the Standards and Testing Agency for 2022 national curriculum assessments and licensed under Open Government Licence v3.0' and where possible provide a link to the licence.



Exceptions – third-party copyright content in test materials

You must obtain permission from the relevant copyright owners, as listed in the '2022 key stage 2 tests copyright report', for re-use of any third-party copyright content which we have identified in the test materials, as listed below. Alternatively, you should remove the unlicensed third-party copyright content and/or replace it with appropriately licensed material.

Third-party content

These materials contain no third-party copyright content.

If you have any queries regarding these test materials, contact the national curriculum assessments helpline on 0300 303 3013 or email assessments@education.gov.uk.



K 0 0 0 7 0 A 0 2 4 2 4