SATs presentation 2024-25
Mathematics
Emmanuel Middle School

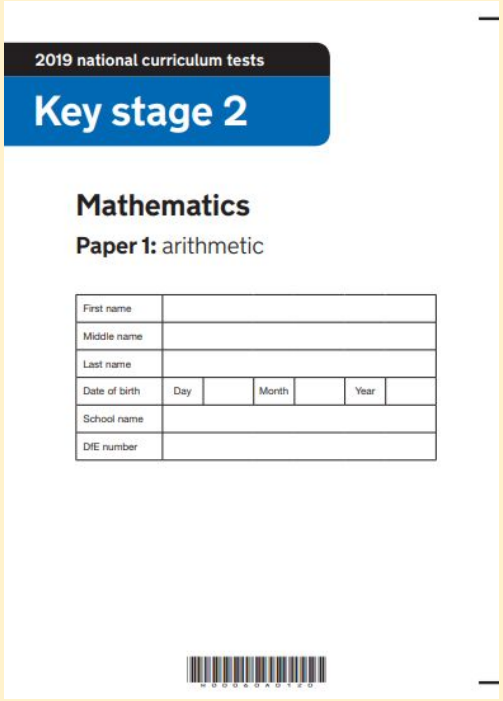
Who takes SATs?

Children in English schools take SATs in year 2 (non-compulsory from 2023) and in year 6. In year 2, children are tested in maths and English (reading and spelling, punctuation and grammar). These tests are generally carried out in a very informal way so your child's under as little pressure as possible. There's no time limit and they're often done in small groups.

In year 6, the SATs become more formal – they're taken in a formal setting within a time limit.

Information about Year 6 SATs: Maths

The maths test consists of three papers - one arithmetic paper of 30 minutes and two reasoning papers of 40 minutes each.

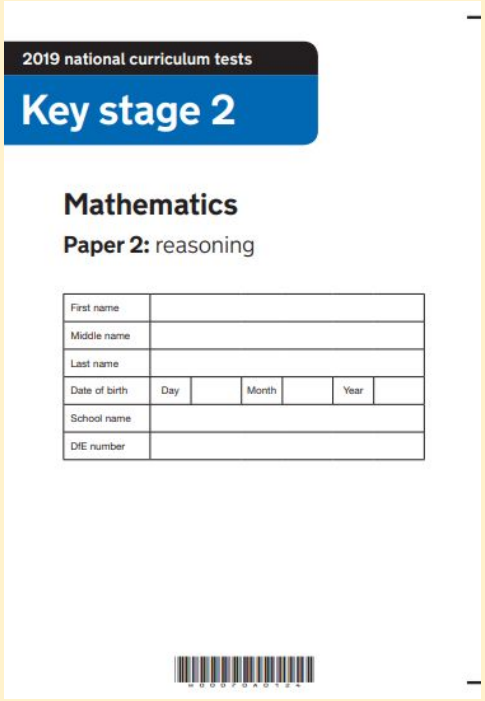

2019 national curriculum tests

Key stage 2

Mathematics

Paper 1: arithmetic

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

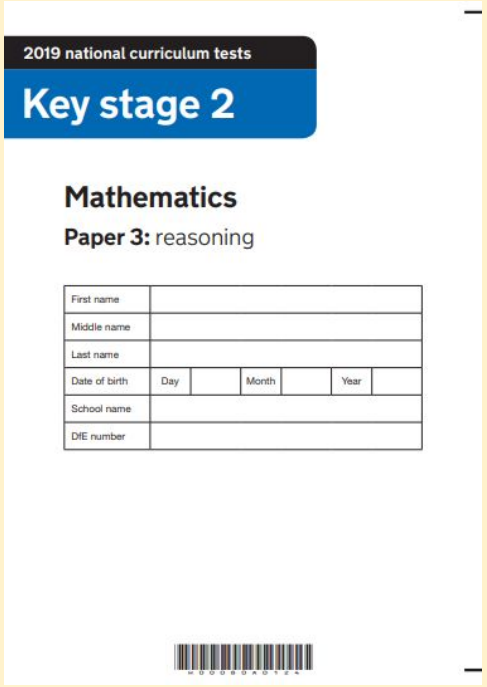

2019 national curriculum tests

Key stage 2

Mathematics

Paper 2: reasoning

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


2019 national curriculum tests

Key stage 2

Mathematics

Paper 3: reasoning

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

Information about Year 6 SATs: Maths

The arithmetic paper tests your child's understanding of number along with mental and written calculation skills. Your child will need to know a range of number facts (such as their times tables). They're also tested on their knowledge of written methods of calculations

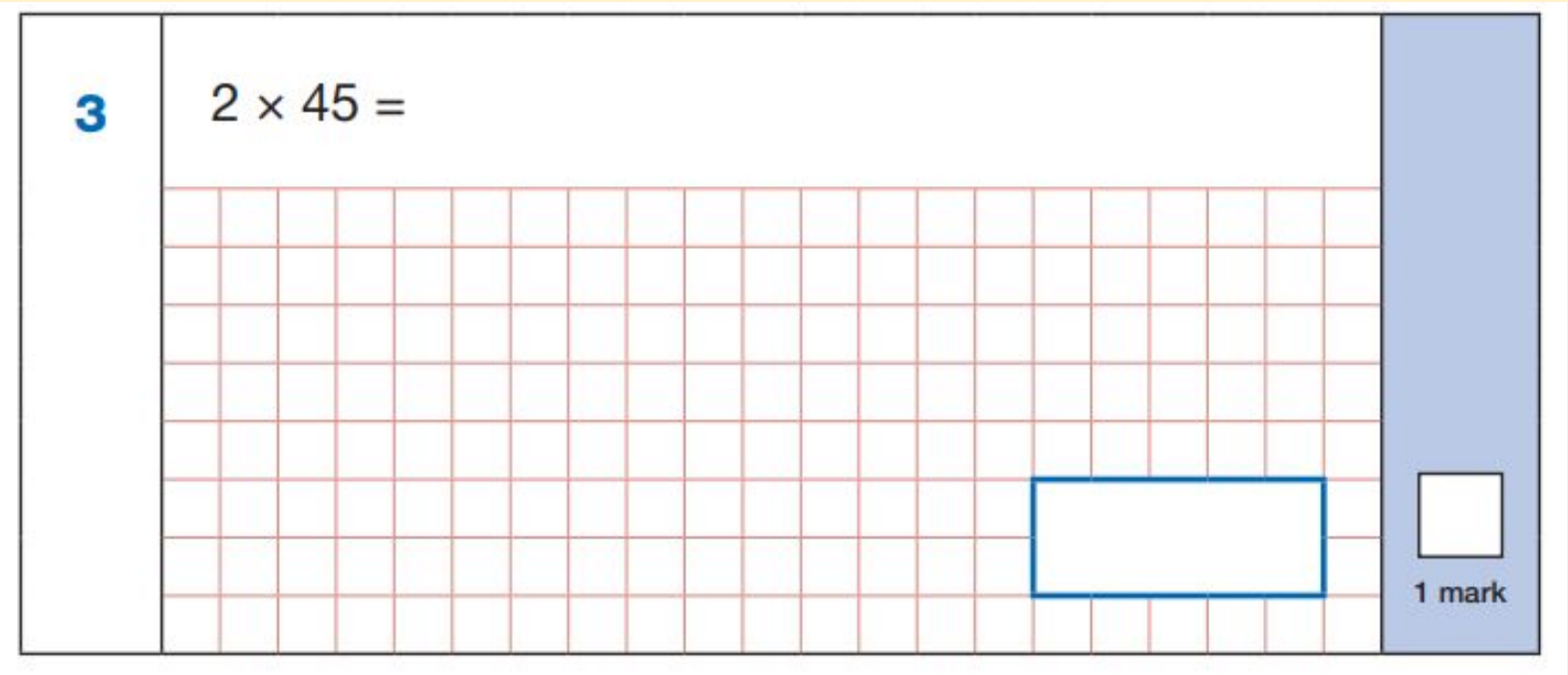
Useful preparation- knowing times table recall facts

Know all your times tables and related division facts up to 12 x 12.

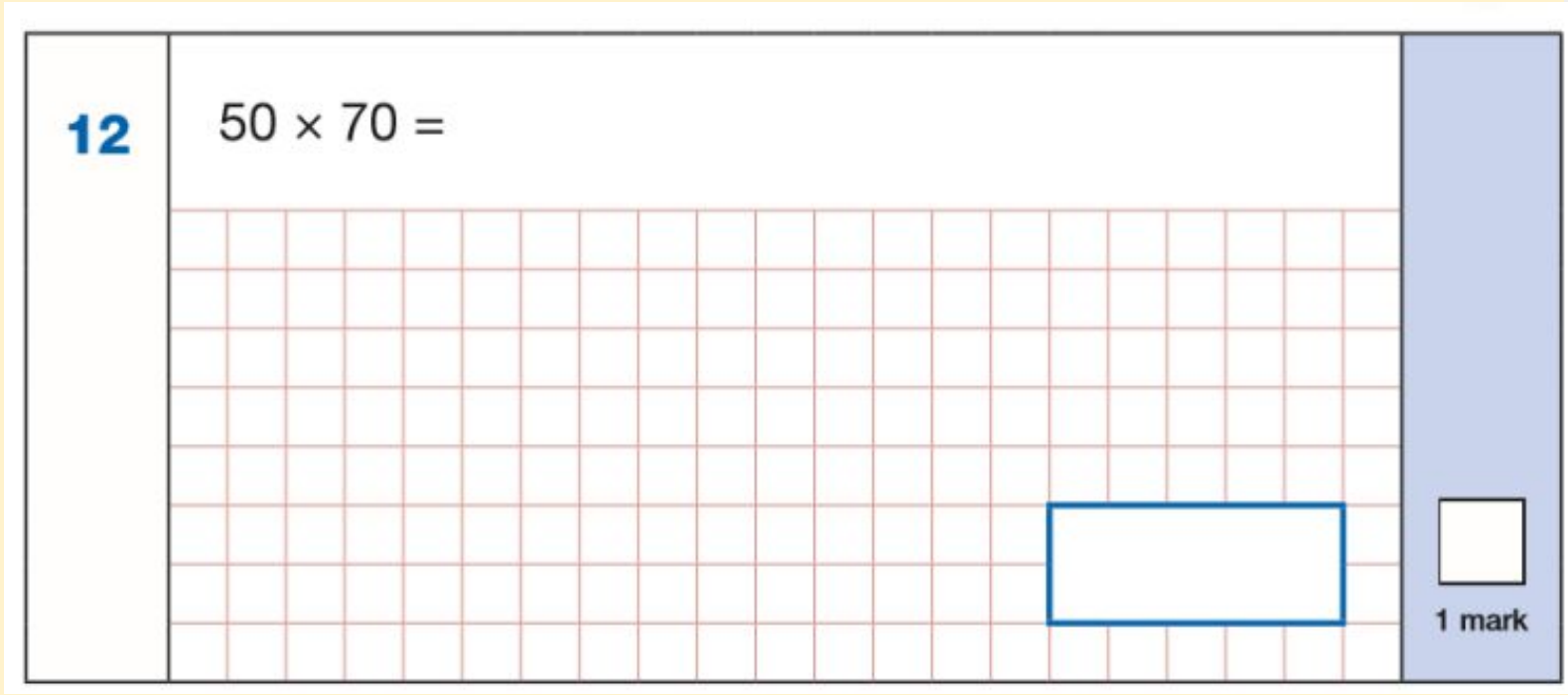
It is a government expectation that all children know all their times tables and related division facts up to 12 x 12 by the end of Year 4. This means being able to quickly know that 7 x 8 = 56 and also that 96 ÷ 12 = 8.

Knowing all your times table facts helps to lighten the cognitive load.

How does this relate to being successful in both arithmetic and reasoning papers?


3
2 × 45 =
1 mark

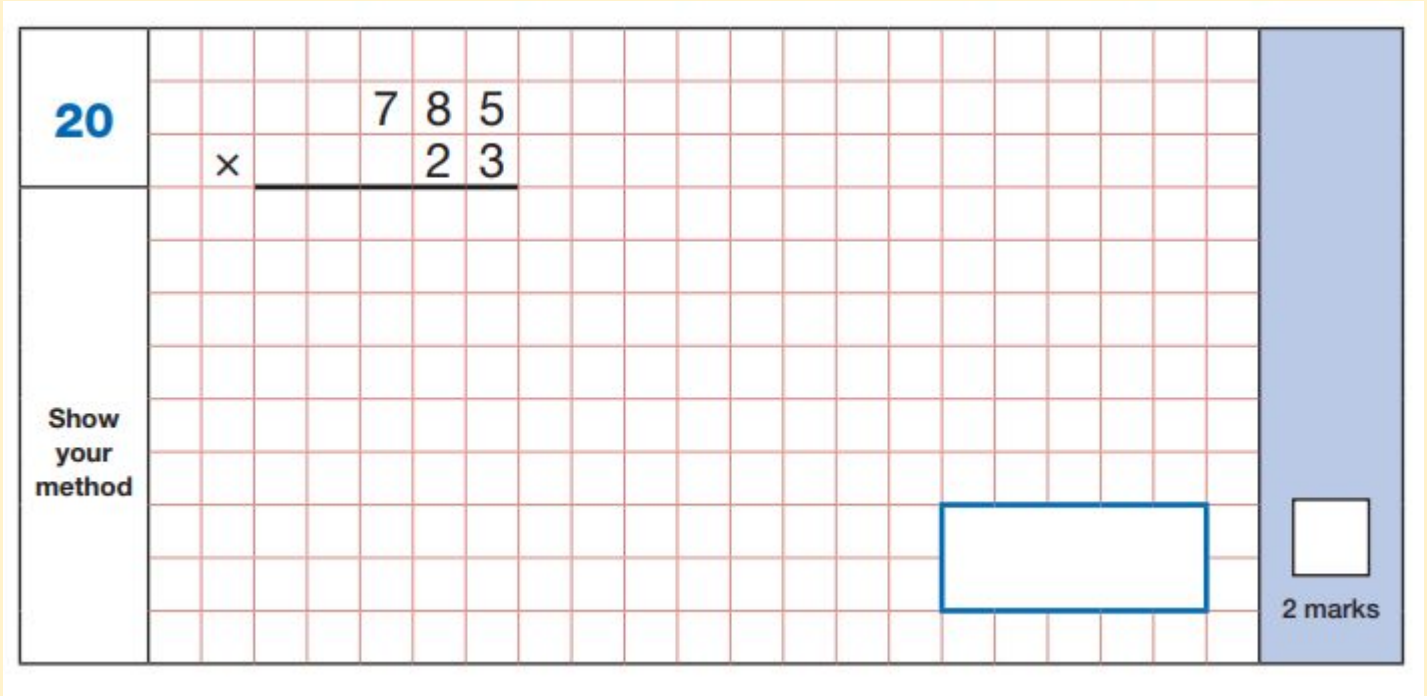
12 $50 \times 70 =$



1 mark

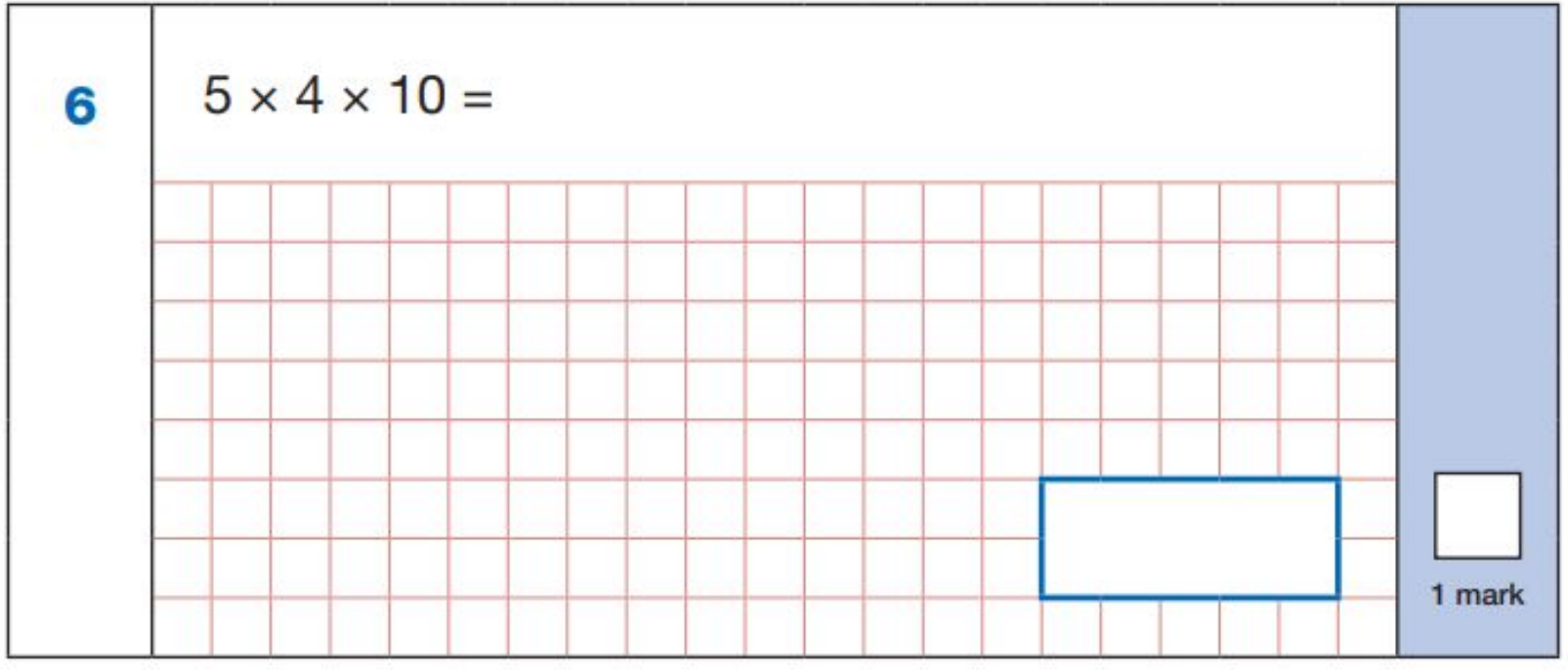
8 $6^2 + 10 =$

1 mark


20
7 8 5
× 2 3
Show your method
2 marks

24 $\frac{1}{2} + \frac{1}{5} =$

1 mark


6
5 × 4 × 10 =
1 mark

Information about Year 6 SATs: Maths

Papers two and three are reasoning tests. Your child will need to apply their mathematical knowledge to solve problems. This could mean buying things in a shop, adapting recipes for different numbers or calculating area and perimeter for tiling a floor. These test papers cover a broader area of maths, including geometry and statistics, as well as number knowledge and arithmetic.

Single-Step problems

Here are the temperatures in four cities at midnight and at midday.

	Temperature	
City	**At midnight**	**At midday**
Paris	−4°C	−2°C
Oslo	−13°C	−7°C
Rome	3°C	10°C
Warsaw	−6°C	2°C

At **midnight**, how many degrees colder was Paris than Rome?

degrees

Single-Step problems

The cheese costs £1.35

Amina pays with a £2 coin.

How much change should Amina get?

1 mark

Single-Step problems

Q1 A cuboid has side lengths of 4cm, 3cm and 4cm.

What is the volume of the cuboid?

$\_\_\_\_\_ cm^3$

1 mark

Single-Step problems

Q1 A car wheel has a radius of 62cm.

What is the diameter of the wheel?

_____ cm

1 mark

Single-Step worded problems

Q2

a Round 7,594 to the nearest ten.

_____

1 mark

Multi-Step worded problems

16

potatoes
£1.50 per kg

carrots
£1.80 per kg

Jack buys $1\frac{1}{2}$ kg of potatoes and $\frac{1}{2}$ kg of carrots.

How much **change** does he get from **£5**?

Show your method

£

2 marks

Multi-Step worded problems

Wishy Washes car wash processes 92 cars per day.

They make £15 per car.

How much money will they have made in 4 days?

Multi-Step worded problems

An aeroplane is flying from Birmingham to New York.

The distance between these two cities is 5,400km

On the journey, the pilot announces, “We are 40% of the way through the flight.”

How far has the aeroplane travelled?

Multi-Step worded problems

Gracie buys 2 adult tickets and 2 child tickets for the theme park.

Adult tickets cost £51 each. Children's tickets cost £36 each.

What was the mean cost of the tickets?

Problems involving measures

13 A box contains 2.6 kg of washing powder.

Jack uses 65 grams of powder for each wash.

He uses all the powder.

How many washes did Jack do?

Show your method

washes

2 marks

Problems involving measures

Q2 Pasta has 250g of carbohydrate per kilogram.

There are 200g of pasta in each small packet.

How much carbohydrate is in each small packet?

_____ g

1 mark

Problems involving measures

A stack of 40 identical boxes is 240cm tall.

Mia takes four boxes off the top.

How tall is the stack now?

cm

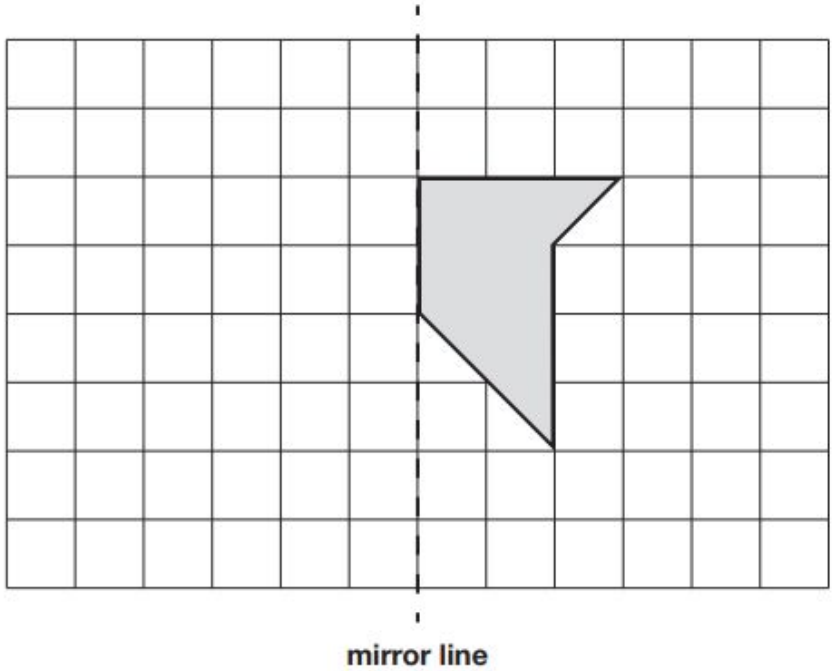
2 marks

Problems that involve drawing

1 Here is a shape on a grid.

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

Use a ruler.



1 mark

Problems that involve drawing

On the line below, mark the point that is 6.7 centimetres from A.

1 mark

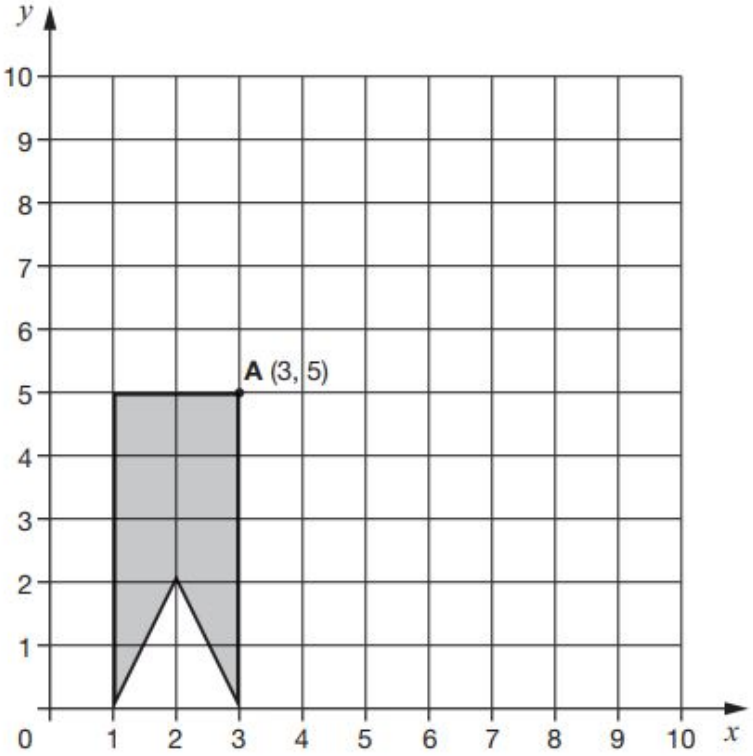
Problems that involve drawing

12 Here is a shape on a grid.

The shape is translated so that point **A** moves to (7, 8).

Draw the shape in its new position.

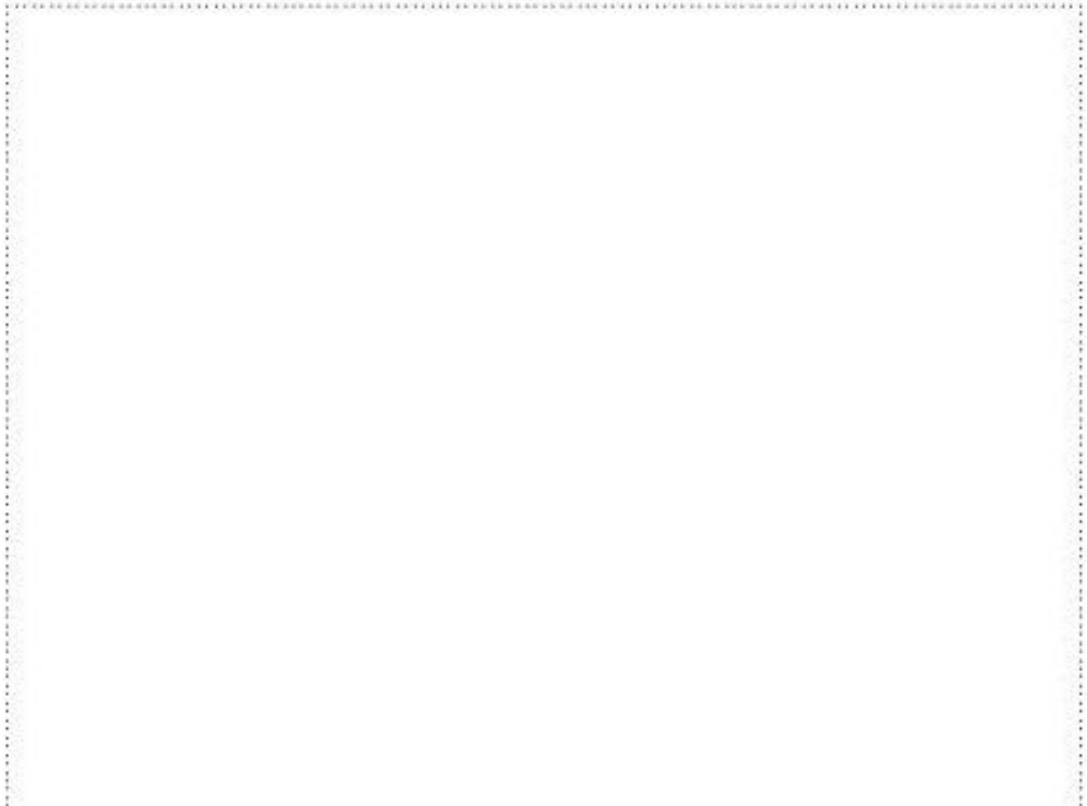
Use a ruler.



1 mark

Problems that involve drawing

Draw an angle that is exactly 140°.



Sequence Problems

1 The numbers in this sequence increase by the same amount each time.

Write the missing numbers.

	42	49		63		

2 marks

Sequence Problems

Q3 The numbers in this sequence increase by the same amount each time.

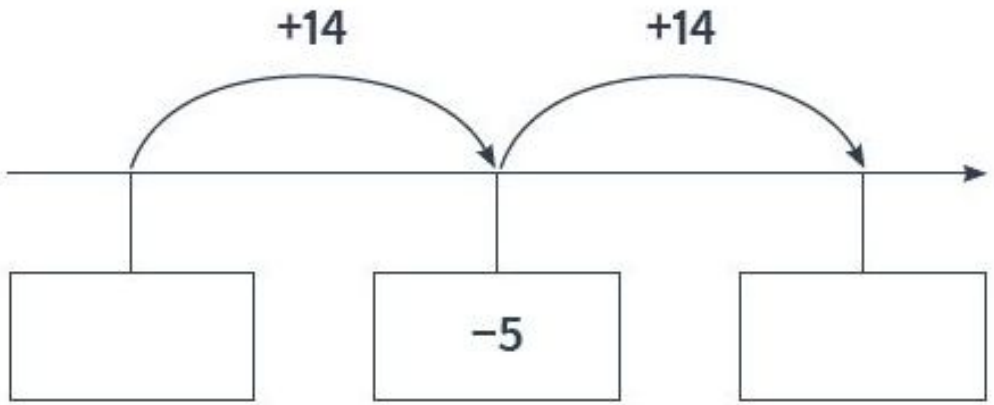
Write in the missing numbers.

$\square$, 1 , $1\frac{3}{8}$, $1\frac{3}{4}$, $\square$

1 mark

Sequence Problems

Q3 Here is part of a number line.



Write the missing numbers in the boxes.

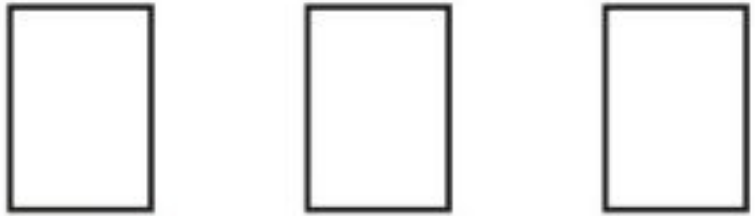
2 marks

Ordering Questions

14

$\frac{6}{5}$ $\frac{3}{5}$ $\frac{3}{4}$

Write these fractions in order, starting with the **smallest**.



smallest

Ordering Questions

Q1 This table shows the distances that four children throw a cricket ball.

	Name	Distance thrown
A	Aaliyah	9.6m
B	Ben	9.23m
C	Chloe	9.09m
D	Dale	9.32m

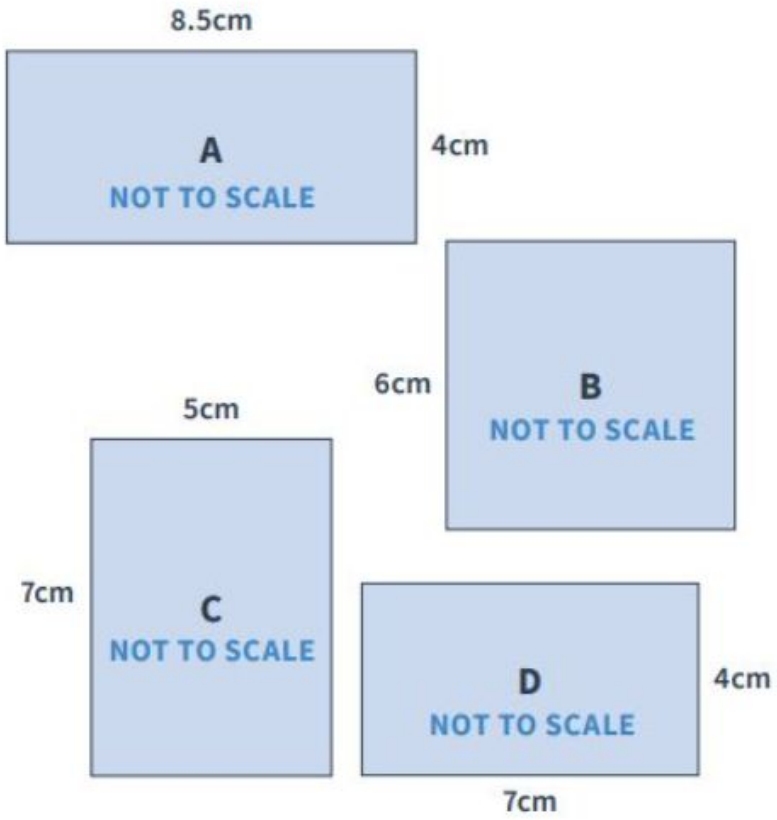
Write the letters A to D in order, from shortest to longest distance thrown.

Shortest Longest

1 mark

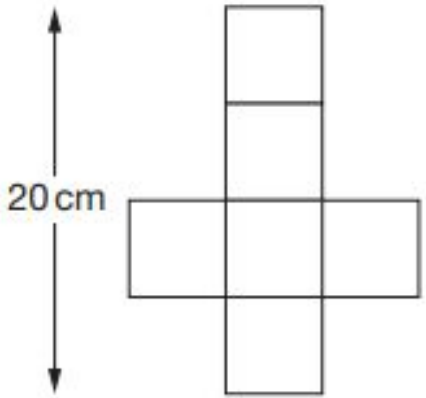
Ordering Questions

Q1 Write the letters A to D so that these shapes are in order from smallest to largest area.



Non Standard Problems

This is the net of a cube.



Not actual size

What is the **volume** of the cube?

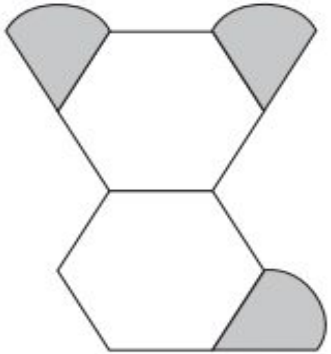
cm^3

1 mark

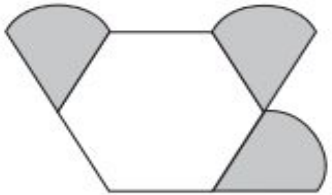
Non Standard Problems

Amina is making designs with two different shapes.

She gives each shape a value.



Total value is 147



Total value is 111

Calculate the value of each shape.

 = ☐

1 mark

 = ☐

1 mark

Non Standard Problems

(Not to scale)

8cm

9cm

16cm

Length?

Here are two rectangles.

The area of the green rectangle is 6 times the area of the blue rectangle.

Work out the Length of the green rectangle.

Year 6

Knowledge Organiser SATs

THIRD SPACE LEARNING

Multiplication and division vocabulary

Term	Definition	Example
factor	a number that divides exactly into another number	factors of 12 = 1, 2, 3, 4, 6, 12
common factor	factors of two numbers that are the same	common factors of 8 and 12 = 1, 2, 4
prime number	a number with only 2 factors: 1 and itself	2, 3, 5, 7, 11, 13, 17, 19...
composite number	a number with more than two factors	12 (it has 6 factors)
prime factor	a factor that is prime	prime factors of 12 = 2, 3
multiple	a number in another number's times table	multiples of 9 = 9, 18, 27, 36...
common multiple	multiples of two numbers that are the same	common multiples of 4 and 6 = 12, 24...
square numbers	the result when a number has been multiplied by itself	25 ($5^2 = 5 \times 5$) , 49 ($7^2 = 7 \times 7$)
cube numbers	the result when a number has been multiplied by itself 3 times	8 ($2^3 = 2 \times 2 \times 2$) , 27 ($3^3 = 3 \times 3 \times 3$)

2-D shapes

Name	No. of sides
quadrilateral	4
pentagon	5
hexagon	6
heptagon	7
octagon	8
nonagon	9
decagon	10

Types of triangle

Types of quadrilateral

Area is the amount of space inside a 2D shape, usually measured in cm² or m².
Area of a triangle = (base × height) ÷ 2
Area of a parallelogram = base × height
(Height = perpendicular height)

polygon = shape with straight sides
regular = all sides / angles the same
irregular = sides / angles **not** the same

Angles

full turn	360°
half turn	180°
right angle	90°
acute angle	< 90°
obtuse angle	> 90°, < 180°
reflex angle	>180°
angles on a straight line	180°
angles in a triangle	180°
angles in a quadrilateral	360°

Shape vocabulary

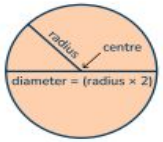
Perimeter = measure around the edge
Circumference = perimeter of a circle

horizontal line

parallel lines

vertical line

perpendicular lines (at right angles)



Measurement conversions

Month	Days
January	31
February	28 (29 in leap year)
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
November	30
December	31
1 year = 365 days (≈ 52 weeks) Leap year = 366 days	

1 **centi**metre	10mm
1 metre	100cm
1 **kilo**metre	1,000 m
1 mile	1.6 km
1 kilometre	0.625 ($\frac{5}{8}$) mile
1 **kilo**gram	1,000 grams
1 litre	1,000 **milli**litres

Roman numerals

1	I	100	C
5	V	500	D
10	X	1000	M
50	L		

Coordinates

Read coordinates along the x-axis (horizontal) first, then the y-axis (vertical). e.g. (3,-4) = go right 3, down 4.

3-D shapes

	square-based pyramid	triangular-based pyramid or tetrahedron	triangular prism
faces (the flat sides)	5	4	5
edges	8	6	9
vertices (the points where the edges meet)	5	4	6

Volume = the amount of space a 3D shape takes up, usually measured in cm³ or m³
Volume of a cuboid = length × width × height

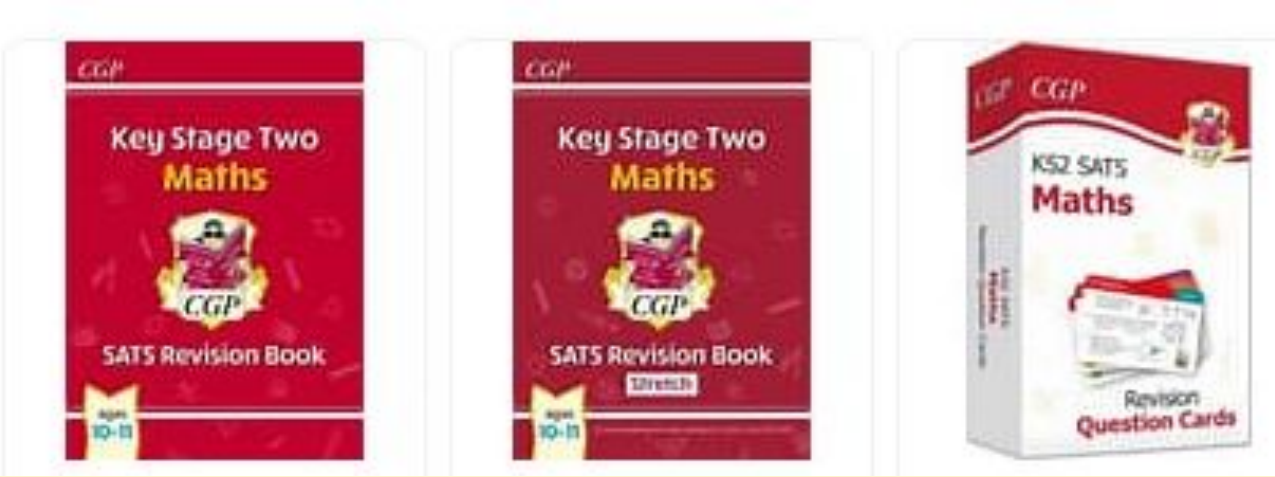
Fractions, decimals and percentages

$\frac{1}{100}$	0.01	1%	÷ 100
$\frac{1}{20}$	0.05	5%	÷ 20
$\frac{1}{10}$	0.1	10%	÷ 10
$\frac{1}{5}$	0.2	20%	÷ 5
$\frac{1}{4}$	0.25	25%	÷ 4
$\frac{1}{2}$	0.5	50%	÷ 2
$\frac{3}{4}$	0.75	75%	÷ 4, × 3
1	1	100%	÷ 1

The mean

The mean is a type of average. To find the mean, add up all the numbers and divide by how many there are. E.g. the mean of 4, 5, 3, 4 is 4, because 4 + 5 + 3 + 4 = 16, and 16 ÷ 4 = 4

CGP Revision guides and useful website links



http://www.amathsdictionaryforkids.com/qr/qr.html

Online dictionary for children which explains common mathematical terms in simple language (including visual representations)

Hit the button times tables
https://www.topmarks.co.uk/maths-games/hit-the-button

https://www.maths.co.uk/Teacher/Overview

- **Third Space Learning**: Offers thousands of free downloadable resources, including worksheets, practice SATs papers, and videos.
- **IXL**: Has separate pages for each year group with links to practice math and English skills.
- **Topmarks**: Includes the Hit the Button game, which helps with mental math skills like number bonds, timestables, and division facts.
- **CGP Books**: Offers free 10-minute online tests.
- **Year 6 Buddy**: Includes animated videos and topics to help students work through.
- **Nova Primary Academy**: Offers questions by topic, so students can focus on areas they struggle with.
- **National Centre for Excellence in the Teaching of Mathematics (NCETM)**: Offers a bank of free math SATs resources that can be used for formative or summative tasks.

Other websites that can help with Year 6 SATs preparation include:

- Myminimaths.co.uk

Maths revision websites and apps to support your child

1. Smartick

Smartick consists of daily 15-minute sessions in which children can master the maths foundations, develop critical thinking and problem-solving skills. Its curriculum includes arithmetic, word problems, logic and coding, and is suitable for children who are either behind, have learning gaps to fill or simply want to excel beyond the classroom.

It also uses artificial intelligence to identify the skills and learning pace of each student, meaning it can adapt to their needs in real-time. The app helps in building a solid foundation of Key Stage 2 maths skills.

2. Komodo Math

Designed by teachers for families, Komodo builds a solid foundation in maths for children aged 5 to 11. A qualified maths teacher will personalise a learning plan for your child. A maths teacher sets up each user's baseline in the app and parents define the rewards. Children then engage in little-and-often practice to raise their maths knowledge and skill.

Komodo's focus is on mastering arithmetic and mental maths because this is the key platform for future success in mathematics. It takes the learner through counting, addition, subtraction, multiplication – including times tables, division, fractions, decimals, percentages and many more essential topics. Komodo is aligned with the National Curriculum and designed to complement school maths. The app helps in building a solid foundation of Key Stage 2 maths skills.

Devices: Android, iOS

Maths revision websites and apps to support your child

3. IXL Math

IXL's dynamic maths practice skills offer comprehensive coverage of the England key stage 2 curriculum. The app covers number and place value, addition and subtraction, multiplication and division, fractions, measurement and shapes.

Kids also get detailed feedback if they answer incorrectly, along with the chance to continue with the same skill to try to apply what they've learned. This can greatly improve their comprehension of difficult concepts. Parents can view kids' scores for various skill exercises, the questions they answered, and other specific information to differentiate instruction for their child.

Devices: Android, iOS

4. DoodleMaths

DoodleMaths is a maths programme that supports maths learning in homes and schools. It identifies children's weaker areas in learning and adapts a programme to that child. Designed and optimised for mobile and tablet, DoodleMaths is perfect for learning on-the-go and as a support for homework. It is used both to raise attainment with lower attaining pupils and extend the more able, regardless of special educational needs or language barriers. Its in-built intelligence identifies the strengths and weaknesses unique to each child and constructs a work program specific to their needs. DoodleMaths is the UK's best-selling Maths app. It covers the curricula of KS2 Maths and KS3 Maths.

Devices: Android, iOS

5. EdPlace

EdPlace provides you access to 1000s of interactive worksheets, assessments and revision materials for Key stage 2 Maths. All the resources are mapped to National Curriculum helping each child succeed in KS2 Maths from year 3 to year 6. With an EdPlace account, you'll be able to track and measure progress, helping each child achieve their best. They build confidence and attainment by personalising each child's learning at a level that suits them. They cover all the topics such as 2D and 3D shapes, addition, subtraction, counting, division, fractions, measurement, algebra and so on.

Devices: Android, iOS

6. Squeebles Times Tables 2

Squeebles Times Table 2 is a beautifully designed app, which helps students practice their times tables in the most fun and interactive way possible. Children learn whilst helping Whizz rescue the Squeebles from the clutches of the nasty maths monster. There are seven different game modes for children to practice their times tables on with a number of characters and rewards available to encourage children to improve their scores. Teachers and parents can also monitor a child's progress and can view a list of tables children have previously got wrong to assist with ongoing learning. The app helps the child in learning Tables 1 – 12 and answer questions across all the basic tables sets from the ones to the twelves. In Year Three, children are encouraged to learn their times tables as this will help when multiplying or dividing numbers. This app can be used with KS2 students.

Devices: Android, iOS