SATs·Papers.co.uk

PRACTICE PAPERS · QUESTION BOOKLETS · MARK SCHEMES & ANSWERS · PAPER NOTES

11+ PRACTICE PACK

Exam Ninja Test 2

11+ Maths Complete Practice Pack

CONTENTS

1 A recipe for making 12 cupcakes requires 180g of flour. Sarah wants to make 30 cupcakes for a bake sale.

How many grams of flour will Sarah need?

A 450g **B** 360g **C** 540g **D** 600g

1

2 Sarah is baking 12 cupcakes for her school's bake sale.

She has a total of 360 g of sugar to use in the cupcake batter.

What will be the average amount of sugar in each cupcake?

A 30 g **B** 24 g **C** 36 g **D** 40 g

1

3 A school has a total of 2 160 000 sheets of paper, which need to be divided equally among 400 students.

How many sheets of paper will each student receive?

A 5 400 **B** 54 000 **C** 540 **D** 54

1

4 A bakery produces 84,600 loaves of bread every year.

If they package the loaves into boxes of 100, how many boxes could they fill?

A 8.46 **B** 0.846 **C** 84.6 **D** 846

1

5 Amelia is saving up to buy a new bicycle that costs £180.

She already has £60 saved up, and plans to save an additional £40 per month.

How many months will it take Amelia to save enough money to buy the bicycle?

A 4 months **B** 3 months **C** 2 months **D** 5 months

1

6 Sarah is making gift bags for a charity event.

Each bag contains a pencils and b erasers.

The total cost of the items in each bag can be calculated using the formula: £$C = 2a + 1.5b$.

If Sarah puts 8 pencils in each bag and the total cost of the items in each bag is £31, how many erasers does she put in each bag?

A 5 **B** 10 **C** 15 **D** 20

1

7 Sarah finishes her shift at the supermarket at 18:20.

She spends 12 minutes walking to the bus stop and waits there for another 17 minutes before the bus arrives.

The bus journey takes 35 minutes to reach her stop, and she walks for a further 8 minutes to reach her home.

At what time does Sarah arrive home?

A 19:32 **B** 19:12 **C** 19:47 **D** 20:02

1

8 Amelia has a square piece of paper. She cuts out a regular pentagon and an equilateral triangle from it.

The shapes have equal side lengths. She places the triangle above the pentagon so that one side of each shape is touching.

How many lines of symmetry does the resulting shape have?

A 1 **B** 2 **C** 3 **D** 5

1

9 Liam is building a rectangular prism-shaped fish tank.

The internal dimensions of the fish tank are 40 cm in length, 25 cm in width, and 30 cm in height.

What is the volume of water, in litres, that the fish tank can hold?

A 29.25 litres **B** 30 litres **C** 27.5 litres **D** 28 litres

1

10 A garden has a perimeter of 50 metres.

The lengths of the sides are 10 metres, 15 metres, 10 metres and 15 metres.

What shape is the garden?

A Rectangle **B** Square **C** Rhombus **D** Circle

1

Paper Notes: 11+ Maths Question Booklet (Test 2)

Compiled by SATs-Papers.co.uk to help you get the most from this paper.

Overview

This is an **11+ Maths practice paper** published by **Exam Ninja**, designed to prepare students sitting the **GL Assessment** style entrance examinations for grammar and independent schools. The paper presents **10 multiple-choice questions** that test mathematical reasoning through real-world word problems rather than abstract calculation.

The questions span number operations, measurement conversions, algebraic manipulation, geometry and problem-solving. Each scenario requires students to extract key information, choose the correct operation, and work through multi-step calculations. Topics include ratio and proportion (scaling recipes, dividing resources), time calculations, volume conversions, substitution into formulae, and properties of 2D shapes.

This paper suits students in Year 5 or Year 6 preparing for 11+ entrance exams, particularly those working towards the GL Assessment format. The emphasis on contextualised problems rather than bare number work mirrors the reasoning focus of modern 11+ papers. Teachers and parents can use it for timed practice or to diagnose gaps in applied arithmetic and spatial reasoning.

How this paper is organised

The paper contains **10 questions**, each worth **1 mark**, presented across two pages. Every question follows a **multiple-choice format** with four answer options labelled A to D. The questions are numbered sequentially from 1 to 10 with no section divisions.

Each question presents a word problem set in an everyday context such as baking, shopping, school resources, or construction projects. Students must read the scenario, identify the mathematical operation required, perform the calculation, and select the correct answer from the choices. The paper does not specify a time limit on the document itself, though 11+ maths papers typically allow 45 to 50 minutes for this volume of work.

The layout is clear with generous spacing around each question and answer grid. A small checkbox appears on the right margin for each question, allowing students or markers to record correct answers. The footer on each page shows the copyright holder, **Exam Ninja**, and the page number.

Topics covered

- Ratio and proportion: scaling recipe quantities up from a given base amount (question 1, requiring students to find the multiplier and apply it)
- Mean and average calculations: dividing a total quantity equally among a set number of items (question 2, finding average sugar per cupcake)
- Large number division: dividing millions by hundreds to find equal shares, with attention to place value and zeros (question 3, distributing paper among students)
- Division with decimals: interpreting remainders and converting whole-number quotients to box counts (question 4, packaging loaves into boxes of 100)
- Two-step word problems involving subtraction and division: calculating remaining amounts and time required (question 5, savings and monthly contributions)
- Algebraic substitution and rearrangement: using a given formula, substituting known values, and solving for an unknown variable (question 6, linear equation with two variables)
- Time calculations using the 24-hour clock: adding multiple intervals of minutes and converting across hour boundaries (question 7, journey home with several stages)
- Lines of symmetry in composite shapes: visualising the combination of a regular pentagon and equilateral triangle and determining symmetry axes (question 8)
- Volume of cuboids and conversion between cubic centimetres and litres: applying length × width × height and converting cm^3 to litres (question 9, fish tank capacity)
- Properties of quadrilaterals: identifying shapes by side lengths and understanding definitions of rectangles, squares, and rhombuses (question 10, garden perimeter)

How to use this paper for revision

- Practise scaling problems by first finding the **multiplier**: divide the target quantity by the given quantity, then multiply all ingredients by that factor.
- When working with **large numbers** involving zeros, write out the place value explicitly or use factor pairs (e.g. 2,160,000 ÷ 400 = 21,600 ÷ 4) to avoid misplacing zeros.
- For **algebraic substitution**, write out the formula, replace letters with numbers in brackets, then simplify step by step. Rearrange only after substitution if required.
- In **time problems**, convert all intervals to minutes first, add them together, then add to the start time. Break across hour boundaries carefully (e.g. 18:20 + 72 minutes = 19:32).
- Sketch **composite shapes** on scrap paper to visualise symmetry. A regular pentagon has 5 lines of symmetry; adding an equilateral triangle on one edge will reduce this number.
- For **volume conversions**, remember that 1 litre = 1,000 cm^3. Calculate volume in cm^3 first, then divide by 1,000 to convert to litres.
- Read each question **twice**: once to understand the scenario, a second time to identify what is being asked. Underline key numbers and the question word (how many, what time, etc.).

Common mistakes to avoid

- In ratio problems, students often **add** the difference instead of **multiplying** by the scale factor. For example, adding 18g per extra cupcake rather than finding that 30 ÷ 12 = 2.5, so 180g × 2.5 = 450g.
- Misreading place value in large numbers: treating 2,160,000 ÷ 400 as 2,160 ÷ 400 and arriving at an answer three orders of magnitude too small.
- In **algebraic questions**, substituting only one variable and forgetting to isolate the unknown. Students may calculate 2 × 8 = 16 and stop, rather than solving 31 = 16 + 1.5b for b.
- Adding times incorrectly across the hour boundary: calculating 18:20 + 29 minutes as 18:49 and then adding further minutes without carrying over into the next hour.
- Confusing **lines of symmetry** with rotational symmetry, or assuming the composite shape retains all symmetries of its constituent parts without checking the alignment.
- Forgetting the **unit conversion** in volume problems: leaving the answer in cm^3 when the question explicitly asks for litres.

Exam technique

Aim to spend roughly **four to five minutes per question** if working under timed conditions. Read each word problem carefully and underline the numbers and the question. Jot down a quick plan or equation on scrap paper before choosing your answer. This reduces careless errors and helps you spot multi-step problems.

Answer every question even if you are unsure. There is **no negative marking** in GL Assessment style papers, so an educated guess is better than a blank. If you are stuck, eliminate obviously wrong answers first (for example, options with incorrect units or implausible magnitudes), then choose from what remains.

Leave difficult questions such as the algebraic formula or composite symmetry problems until the end if they are taking too much time. Secure marks on straightforward division and time questions first, then return to the harder items with any remaining minutes. Check your working, especially unit conversions and place value, in the final minutes rather than second-guessing your first instinct on multiple-choice answers.

What to revise alongside this paper

Students should revise **multiplication and division of decimals**, particularly when scaling quantities or converting units. Practise problems involving money, mass, and capacity to build fluency with real-world contexts. Work through more ratio and proportion exercises, including recipes, maps, and sharing problems, to strengthen proportional reasoning.

Algebraic manipulation is a key skill: practise forming and solving **simple linear equations** from word problems, substituting into formulae, and rearranging to isolate unknowns. Review **properties of 2D shapes**, especially quadrilaterals and regular polygons, and explore how symmetry changes when shapes are combined or altered.

For further challenge, move on to problems involving **percentage increase and decrease**, compound measures such as speed and density, and 3D shapes including surface area. Timed practice with full-length 11+ papers will build exam stamina and help students refine their pacing and checking routines.

Key terms

> **Ratio**, **Proportion**, **Mean (average)**, **Place value**, **Divisor and dividend**, **Substitution**, **Variable**, **Linear equation**, **24-hour clock**, **Line of symmetry**, **Regular polygon**, **Equilateral triangle**, **Volume**, **Cuboid (rectangular prism)**, **Perimeter**, **Rectangle**, **Rhombus**

For more free 11+ practice papers, past papers and online practice tests, visit **SATs-Papers.co.uk**.

11+ Practice Test Answers

11+ Maths Test 2

Question	Answer	Explanation	Marks
1	450g	To find the amount of flour needed for 30 cupcakes, we need to set up a proportion: 12 cupcakes : 180g of flour = 30 cupcakes : x grams of flour Cross multiply to solve for x: 12x = 180 × 30 12x = 5 400 x = 5 400 ÷ 12 x = 450 Therefore, Sarah will need 450g of flour to make 30 cupcakes.	1
2	30 g	To find the average (mean) amount of sugar in each cupcake, we need to divide the total amount of sugar by the number of cupcakes. Total sugar: 360 g Number of cupcakes: 12 Average sugar per cupcake = 360 g ÷ 12 = 30 g Therefore, the average amount of sugar in each cupcake will be 30 g.	1
3	5 400	To find the number of sheets each student will receive, we need to divide the total number of sheets by the number of students. 2 160 000 ÷ 400 = 5 400 Step 1: Divide 2 160 000 by 400. 2 160 000 ÷ 400 = 5 400 Therefore, each student will receive 5 400 sheets of paper.	1
4	846	To solve this problem we simply need to calculate how many boxes the bakery can fill with 84,600 loaves if each box can hold 100 loaves: 84,600 ÷ 100 = 846 Hence, they can fill 846 boxes of 100 loaves.	1

5	3 months	To find out how many months it will take Amelia to save enough money, we need to calculate the remaining amount she needs to save and divide it by her monthly savings. The bicycle costs £180, and Amelia already has £60 saved. Remaining amount to save = £180 - £60 = £120 Amelia plans to save an additional £40 per month. Months needed to save the remaining amount = £120 ÷ £40 per month = 3 months Therefore, it will take Amelia 3 months to save enough money to buy the bicycle.	**1**
6	10	To find the number of erasers Sarah puts in each bag, we need to substitute the known values into the given formula and solve for *b*. Given: - The total cost of items in each bag is £31, so $C = 31$ - Sarah puts 8 pencils in each bag, so $a = 8$ Substituting these values into the formula: $£31 = 2(8) + 1.5b$ $£31 = £16 + 1.5b$ Subtracting £16 from both sides: $£15 = 1.5b$ Dividing both sides by 1.5: $b = £15 \div 1.5$ $b = 10$ Therefore, Sarah puts 10 erasers in each gift bag.	**1**
7	19:32	To find out when Sarah arrives home, we need to add up the time taken for each part of her journey: 1. Sarah finishes her shift at 18:20 2. Walking to the bus stop: 12 minutes 18:20 + 12 minutes = 18:32 3. Waiting at the bus stop: 17 minutes 18:32 + 17 minutes = 18:49 4. Bus journey: 35 minutes 18:49 + 35 minutes = 19:24 5. Walking from the bus stop to her home: 8 minutes 19:24 + 8 minutes = 19:32 Therefore, Sarah arrives home at 19:32.	**1**

8	1	The resulting shape has only one line of symmetry. A regular pentagon has 5 lines of symmetry, and an equilateral triangle has 3 lines of symmetry. However, when the two shapes are placed together as described, most of these lines of symmetry are lost. The only line of symmetry that remains is the vertical line that passes through the point where the two shapes touch. This line divides the shape into two equal halves that are mirror images of each other. Therefore, the correct answer is that the resulting shape has 1 line of symmetry.	1
9	30 litres	To find the volume of water the fish tank can hold, we need to multiply the internal dimensions of the tank. Volume of water = Internal length × Internal width × Internal height Volume of water = 40 cm × 25 cm × 30 cm = 30,000 cm^3 To convert cm^3 to litres, divide by 1,000: 30,000 cm^3 ÷ 1,000 = 30 litres	1
10	Rectangle	The garden has two pairs of equal sides: 10 metres and 15 metres. This means that of the shapes listed, it can only be a rectangle. It cannot be a circle as there are four sides and it cannot be a rhombus or a square as all four sides are not equal.	1

Paper Notes: 11+ Maths Answers (Test 2)

Compiled by SATs-Papers.co.uk to help you get the most from this paper.

Overview

This mark scheme shows the full working for every question, so the most effective way to use it is to first have your child attempt each problem independently, then compare their method with the one given. Award one mark per question, following the answer exactly as shown.

When you find an error, **distinguish between calculation slips and method gaps**. If your child set up the correct proportion in Q1 but made an arithmetic mistake, that is very different from not knowing that a proportion was needed. A calculation slip means more care is required; a method gap means the concept needs re-teaching.

If a question was answered incorrectly, work through the explanation line by line with your child. Ensure they can articulate each step in their own words before moving to the next question.

How this paper is organised

(empty)

Topics covered

(none)

How to use this paper for revision

(none)

Common mistakes to avoid

(none)

Exam technique

(empty)

What to revise alongside this paper

(empty)

Key terms

> (none)

For more free 11+ practice papers, past papers and online practice tests, visit **SATs-Papers.co.uk**.