

## 11+ PRACTICE PACK

# Exam Ninja Test 5

## 11+ Maths Complete Practice Pack

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Exam Ninja 11+ Maths. Work through this paper first.

Includes Paper Notes: overview, topics, revision tips, common mistakes.

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Exam Ninja 11+ Maths. Use to mark your work against the official answer key.

Includes Paper Notes: score interpretation, selected worked examples, next steps.

PRACTISE THE REAL THING

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1 Which of the following 3D shapes has exactly 5 vertices?

- A Square-based pyramid      B Triangular prism      C Cube      D Octahedron

1

2 Which of the following pairs of weights has a difference greater than 1.75 kg?

- A 5.42 kg and 7.18 kg      B 2.89 kg and 4.64 kg      C 1.56 kg and 3.31 kg      D 6.73 kg and 8.48 kg

1

3 Mrs Johnson's Year 6 class held a sponsored silence to raise money for charity.

The 25 pupils in the class managed to stay silent for a total of 500 minutes.

What was the average number of minutes each pupil stayed silent for?

- A 5      B 10      C 20      D 25

1

4 Samantha works at a bakery from Monday to Sunday.

On weekdays, she earns £10 per day.

On weekends, she earns triple the weekday amount per day.

Calculate the average amount Samantha earns per day across the entire week.

- A £15      B £15.71      C £16      D £15.31

1

5 A train carriage has a maximum capacity of  $c$  passengers. The 09:15 train has 3 carriages and the 11:30 train has 2 more carriages than the 09:15 train.

Which expression represents the total passenger capacity of the 11:30 train?

- A  $3c + 2$       B  $5c$       C  $c + 5$       D  $2(3c)$

1

**6**

A school has a mean number of 32 pupils per class.

If the total number of pupils in the school is 224, how many classes are there?

- A 7                                      B 8                                      C 6                                      D 5

1

**7**

Amir is building a rectangular fish tank out of glass.

The tank will have a length of 60 cm, a width of 30 cm, and a height of 40 cm.

What is the total surface area of glass that Amir needs to construct the fish tank?

- A 9 000 cm<sup>2</sup>                      B 5 400 cm<sup>2</sup>                      C 7 200 cm<sup>2</sup>                      D 3 600 cm<sup>2</sup>

1

**8**

Which of the following measurements represents an obtuse angle?

- A 45°                                      B 90°                                      C 135°                                      D 60°

1

**9**

Amelia is collecting stickers for her album.

On Monday, she gets 523 stickers from her friends.

On Tuesday, she buys 341 stickers from the shop.

On Wednesday, her teacher gives her 289 stickers for good behaviour.

How many stickers did Amelia collect in total over the three days?

- A 1 153                                      B 1 163                                      C 1 143                                      D 1 243

1

**10**

Sarah is helping her dad build a fence in their garden.

She measures the lengths of wood they will need for each side of the fence.

The lengths she measures are: 3 metres, 5 metres, 3 metres, 4 metres and 5 metres.

What shape will the fence be when it is finished?

- A Irregular pentagon                      B Regular pentagon                      C Irregular hexagon                      D Regular hexagon

1



# Paper Notes: 11+ Maths Question Booklet (Test 5)

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you get the most from this paper.

## Overview

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This is **Exam Ninja's 11+ Maths Test 5**, a ten-question multiple-choice practice paper designed for children aged 10 to 11 preparing for the **GL Assessment** style of **11+ entrance examination**. The paper tests a breadth of mathematical topics including three-dimensional geometry, measurement, decimal arithmetic, averages, algebraic expressions, surface area, angles, addition, and shape recognition.

Each question is presented in a clear, accessible format with four answer options labelled A to D. The problems are set in practical, real-world contexts such as sponsored silences, bakery wages, train carriages, fish tanks, and garden fences, which help students apply their mathematical reasoning to everyday situations. This approach mirrors the problem-solving emphasis found in many 11+ Maths papers.

The paper is suitable for independent timed practice or as a diagnostic tool to identify areas requiring further revision. With one mark per question and no extended working required, it allows students to focus on accuracy, speed, and the ability to select the correct method quickly.

## How this paper is organised

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The paper consists of **10 multiple-choice questions**, each worth **1 mark**, giving a total of 10 marks available. Questions are numbered sequentially from 1 to 10 and are printed across two pages. Each question presents a stem (the problem statement) followed by four answer options labelled A, B, C, and D.

No working space is provided on the paper itself, which is typical of multiple-choice format exams. Students are expected to perform calculations mentally or on separate rough paper before selecting their answer. The questions vary in difficulty and cover a range of topics, ensuring a broad assessment of mathematical knowledge and reasoning.

No time limit is stated on the paper, but for realistic exam practice, students should aim to complete all ten questions in approximately 10 to 12 minutes. This pacing reflects the rapid decision-making required in timed 11+ Maths papers and helps build fluency and confidence under exam conditions.

## Topics covered

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- Three-dimensional shape properties, specifically identifying the number of **vertices** in pyramids, prisms, cubes, and octahedra
- Decimal subtraction and comparison to determine differences between pairs of weights expressed in kilograms
- Calculating **mean averages** by dividing a total (minutes of silence) by the number of data points (pupils)
- Multi-step average problems involving different rates of pay across weekdays and weekends, requiring careful addition and division
- Forming and interpreting **algebraic expressions** using variables to represent passenger capacity across multiple train carriages
- Using the mean to find a missing quantity, such as the number of classes when the total number of pupils and mean class size are known
- Calculating the **total surface area** of a rectangular prism (cuboid) by finding the area of all six faces
- Classifying angles as acute, right, obtuse, or reflex, with particular focus on recognising **obtuse angles** (between  $90^\circ$  and  $180^\circ$ )
- Addition of three-digit numbers across multiple steps, checking for carrying and accuracy in column addition
- Identifying two-dimensional shapes (pentagons and hexagons) from given side lengths and determining whether shapes are regular or irregular

## How to use this paper for revision

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- Revise the properties of common 3D shapes (pyramids, prisms, cubes, spheres, cones) including the number of vertices, edges, and faces for each.
- Practise subtracting decimals with two decimal places, especially when the numbers cross whole number boundaries (e.g. 8.48 minus 6.73).
- Memorise the formula for calculating the mean: divide the total by the number of items. Work through several multi-step average problems that involve different categories or rates.
- Strengthen your understanding of forming algebraic expressions. If a train has 3 carriages and each holds  $c$  passengers, the total capacity is  $3c$ . If another train has 2 more carriages, it has 5 carriages, so capacity is  $5c$ .
- For surface area of cuboids, remember there are three pairs of identical faces: top and bottom, front and back, left and right. Calculate the area of each pair, then add them together.
- Learn angle definitions precisely: acute is less than  $90^\circ$ , right is exactly  $90^\circ$ , obtuse is between  $90^\circ$  and  $180^\circ$ , reflex is between  $180^\circ$  and  $360^\circ$ .
- When adding a series of numbers, line them up in columns and check your carrying carefully. Double-check your answer by estimating (e.g.  $523 + 341 + 289$  is roughly  $500 + 300 + 300 = 1,100$ ).

## Common mistakes to avoid

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- Confusing vertices with edges or faces. A square-based pyramid has 5 vertices (the four corners of the base plus the apex), not 5 edges.
- Forgetting to subtract when asked for the difference between two weights. Simply spotting the larger number is not enough; you must calculate the difference and compare it to 1.75 kg.
- Dividing incorrectly when calculating averages. For question 3, some students divide 500 by 5 or 10 instead of 25, misreading the number of pupils in the class.
- Mixing up weekday and weekend earnings. Samantha earns £10 on each of five weekdays (total £50) and £30 on each of two weekend days (total £60). The weekly total is £110, which divided by 7 gives approximately £15.71.
- Writing  $3c + 2$  instead of  $5c$  for the train capacity. The 11:30 train has 2 **more carriages** (5 carriages total), not 3 carriages plus 2 passengers.
- Calculating only one face or forgetting to double the areas when finding the total surface area of a cuboid. There are six faces, not three.

## Exam technique

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Approach multiple-choice Maths papers by reading each question carefully and identifying what is being asked before looking at the answer options. Underline or highlight key numbers and keywords such as 'mean', 'difference', 'total', or 'expression'. This prevents you from jumping to an incorrect answer based on a misreading of the question.

Work through each question methodically, using rough paper to jot down intermediate calculations. Even in multiple-choice format, showing your working (for your own reference) helps you spot mistakes and keeps your thinking organised. Once you have calculated an answer, check it against the options provided. If your answer does not match any option, revisit your working rather than guessing immediately.

Aim to spend no more than one minute per question, leaving a little time at the end to review any questions you found challenging. If you are uncertain about an answer, eliminate obviously incorrect options first to improve your chances if you need to make an educated guess. Mark any questions you skip so you can return to them quickly.

## What to revise alongside this paper

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Students working on this paper should also revise **volume calculations** for cuboids and other prisms, as surface area and volume are closely linked topics. Practise finding the volume using the formula  $\text{length} \times \text{width} \times \text{height}$ , and understand the difference between area (measured in square units) and volume (measured in cubic units).

Algebraic manipulation skills are foundational for later Maths work. After mastering simple expressions like  $5c$ , progress to simplifying expressions involving addition and subtraction of terms (e.g.  $3a + 2a$  or  $7b - 4b$ ) and substituting values into expressions to find numerical answers. These skills build confidence with symbolic reasoning.

Geometry revision should extend to the properties of other 3D shapes (cones, cylinders, spheres) and to two-dimensional shapes including circles, trapeziums, parallelograms, and compound shapes. Understanding how to calculate perimeter, area, and the relationships between angles in triangles and quadrilaterals will strengthen problem-solving ability across a wide range of 11+ question types.

## Key terms

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**Vertices, Square-based pyramid, Triangular prism, Mean (average), Decimal subtraction, Algebraic expression, Variable, Surface area, Cuboid (rectangular prism), Obtuse angle, Regular polygon, Irregular polygon, Pentagon, Capacity, Three-digit addition**

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# 11+ Practice Test Answers

## 11+ Maths Test 5

Question	Answer	Explanation	Marks
1	Square-based pyramid	<p>A square-based pyramid is the correct answer because it has exactly 5 vertices.</p> <p>A vertex is a point where three or more edges meet. In a square-based pyramid, there are four vertices at the base (one at each corner of the square) and one vertex at the apex, making a total of 5 vertices.</p> <p>A triangular prism has 6 vertices (three at each end), a cube has 8 vertices (one at each corner), and an octahedron has 6 vertices. Therefore, the square-based pyramid is the only shape among the given options that has exactly 5 vertices.</p>	1
2	5.42 kg and 7.18 kg	<p>To find the difference between two numbers, we subtract the smaller number from the larger number.</p> <p>5.42 kg and 7.18 kg: <math>7.18 - 5.42 = 1.76</math> kg</p> <p>2.89 kg and 4.64 kg: <math>4.64 - 2.89 = 1.75</math> kg (incorrect)</p> <p>1.56 kg and 3.31 kg: <math>3.31 - 1.56 = 1.75</math> kg (incorrect)</p> <p>6.73 kg and 8.48 kg: <math>8.48 - 6.73 = 1.75</math> kg (incorrect)</p> <p>Therefore, the pair of weights with a difference greater than 1.75 kg is 5.42 kg and 7.18 kg.</p>	1
3	20	<p>To find the average (mean) number of minutes each pupil stayed silent for, we need to divide the total number of minutes by the number of pupils.</p> <p>There are 25 pupils in Mrs Johnson's Year 6 class, and they stayed silent for a total of 500 minutes.</p> <p><math>500 \div 25 = 20</math></p> <p>Therefore, on average, each pupil stayed silent for 20 minutes during the sponsored silence.</p>	1
4	£15.71	<p>To calculate the average (mean) amount Samantha earns per day, we need to:</p> <ol style="list-style-type: none"> <li>1. Calculate her total earnings for the week</li> <li>2. Divide the total by the number of days in the week</li> </ol> <p>Weekday earnings: <math>\text{£}10 \times 5 \text{ days} = \text{£}50</math></p> <p>Weekend earnings: <math>\text{£}10 \times 3 \times 2 \text{ days} = \text{£}60</math></p> <p>Total earnings: <math>\text{£}50 + \text{£}60 = \text{£}110</math></p> <p>Average daily earnings: <math>\text{£}110 \div 7 \text{ days} = \text{£}15.71</math> (rounded to the nearest penny)</p>	1

5	5c	<p>Let's break this down step by step:</p> <p>The 09:15 train has 3 carriages, and each carriage has a capacity of <math>c</math> passengers. So, the total passenger capacity of the 09:15 train is <math>3 \times c = 3c</math>.</p> <p>The 11:30 train has 2 more carriages than the 09:15 train. Since the 09:15 train has 3 carriages, the 11:30 train has <math>3 + 2 = 5</math> carriages.</p> <p>Each carriage still has a capacity of <math>c</math> passengers. So, the total passenger capacity of the 11:30 train is <math>5 \times c = 5c</math>.</p> <p>Therefore, the correct answer is <math>5c</math>.</p>	1
6	7	<p>To find the number of classes, we need to divide the total number of pupils by the mean number of pupils per class.</p> <p>Total number of pupils = 224  Mean number of pupils per class = 32</p> <p>Number of classes = <math>224 \div 32 = 7</math></p> <p>Therefore, there are 7 classes in the school.</p>	1
7	9 000 cm <sup>2</sup>	<p>To find the total surface area of the rectangular fish tank, we need to calculate the area of each face and then add them together.</p> <p>The tank has 5 faces: 2 rectangles with dimensions 60 cm <math>\times</math> 40 cm (front and back), 2 rectangles with dimensions 30 cm <math>\times</math> 40 cm (sides), and 1 rectangle with dimensions 60 cm <math>\times</math> 30 cm (only the bottom, it doesn't need a top!).</p> <p>Area of front and back: <math>2 \times (60 \text{ cm} \times 40 \text{ cm}) = 2 \times 2\,400 \text{ cm}^2 = 4\,800 \text{ cm}^2</math></p> <p>Area of sides: <math>2 \times (30 \text{ cm} \times 40 \text{ cm}) = 2 \times 1\,200 \text{ cm}^2 = 2\,400 \text{ cm}^2</math></p> <p>Area of the bottom: <math>(60 \text{ cm} \times 30 \text{ cm}) = 1\,800 \text{ cm}^2</math></p> <p>Total surface area = <math>4\,800 \text{ cm}^2 + 2\,400 \text{ cm}^2 + 1\,800 \text{ cm}^2 = 9\,000 \text{ cm}^2</math></p> <p>Therefore, Amir needs 9 000 cm<sup>2</sup> of glass to construct the fish tank.</p>	1
8	135°	<p>An obtuse angle is an angle that measures greater than 90° but less than 180°.</p> <p>Among the given options, only 135° falls within this range, making it the correct answer.</p> <p>45° and 60° are acute angles, as they measure less than 90°, while 90° is a right angle.</p>	1
9	1 153	<p>To find the total number of stickers Amelia collected, we need to add the number of stickers she got each day:</p> <p>Monday: 523 stickers  Tuesday: 341 stickers  Wednesday: 289 stickers</p> <p><math>523 + 341 + 289 = 1\,153</math></p> <p>Therefore, Amelia collected a total of 1 153 stickers over the three days.</p>	1

10

Irregular  
pentagon

The fence will be an irregular pentagon because:

1. It has five sides (penta- means five)
2. The lengths of the sides are not all equal (3m, 5m, 3m, 4m, 5m), so it is not a regular shape

Therefore, the finished fence will be an irregular five-sided shape, which is called an irregular pentagon.

1

# Paper Notes: 11+ Maths Answers (Test 5)

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you get the most from this paper.

## Overview

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The mark scheme already includes full working for every question, explaining the concepts (vertices, averages, algebra, surface area) and showing all calculation steps. Use it to mark objectively, awarding 1 mark per question as indicated.

Distinguish careless errors (copying a number wrongly, pressing the wrong calculator button) from genuine gaps in understanding. If a child misreads 7.18 as 7.81, that is different from not knowing how to subtract decimals.

Refer to the detailed explanations in the mark scheme when reviewing mistakes. Each entry outlines the method and reasoning, so you can see exactly where a misunderstanding occurred. If several questions on the same topic are wrong, that signals a concept to revise.

## How this paper is organised

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(empty)

## Topics covered

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(none)

## How to use this paper for revision

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(none)

## Common mistakes to avoid

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(none)

## Exam technique

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(empty)

## What to revise alongside this paper

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(empty)

## Key terms

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(none)

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