

11+ PRACTICE PACK

OWL Tuition Test 8

11+ Maths Complete Practice Pack

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11 Plus

Paper [8]

Maths Non-Calculator

Total marks: [40]

Time allowed: 60 minutes

Instructions

You have 1 hour.

There are 40 marks available. Try to answer all the questions. Remember to show your working out.

No calculators are allowed.

Full name _____

Questions

1. Write the following times in the 24 hour clock:

a. 9.45pm b. 2.02pm c. 8.23pm

2. What percentage of three hours is 18 minutes? (2 marks)

3. Which of these regular polygons has the largest interior angle?

a. pentagon b. square c. octagon

4. Put these numbers in descending order of size

0.82

8.2

0.082

82

5. Write the number 69, 303 in words.

6. Ed wants to make 2 litres of blackcurrant squash. He knows he needs four times as much water as squash concentrate. He has four hundred millilitres of squash concentrate. Does he have enough to make 2 litres? (2 marks)

7. A bag contains two red balls, four green balls and six yellow balls. Adrian picks a ball at random. What is the likelihood of him picking a ball that is

a. red

b. green or yellow

c. blue?

Express your answers as fractions in their simplest form. (2 marks each)

8. Look at the following list of numbers:

3 9 15 24 64

Which of these numbers is a

a. cube number

b. prime number

c. square number



9. Erisha sells 1500 tickets to her concert. Four tenths of those people who attend are women. How many men attend? (2 marks)

10. Look at these winning scores from a recent tennis tournament:

Game 1	Game 2	Game 3	Game 4	Game 5	Game 6
11	12	15	15	14	

The results for Game 6 are missing. Josie says “the mean winning score was 12”. What is the missing score? (3 marks)

11. What is the mode of these numbers?

12 8 34 8 9 10

12. Monique has a cube. One of the sides measures 5cm. What is the volume of the cube?

13. When Priya and her family arrive at the airport, they discover their suitcase is too heavy to take on the plane. The weight limit is 23kg. They take out an item which weighs 650g and their suitcase is accepted. What is the maximum weight of the original suitcase? Give your answer in kilograms. (2 marks)

14. In Shona's café, because they use different cups, cups of coffee weigh 1.5 times as much as cups of tea. If three cups of tea weigh 900g, how much do five cups of coffee weigh? Give your answer in kilograms. (2 marks)

15. Ron's coaches have x seats. Daisy's coaches have y seats. Formulate an algebraic expression in terms of x and y if Dan wants to hire three of Ron's coaches and ten of Daisy's for his school trip. (2 marks)

16. What is the highest factor of both 8 and 20?

17. In a scalene triangle, one of the angles is 75° and one is 34° . What is the size of the other angle?

18. Which of these objects will hold around 300mls of liquid?

a. a swimming pool b. a cup of tea c. a teaspoon d. a large bucket

19. Write these numbers to two decimal places

a. 4.356 b. 0.0999 c. 6.129

20. In an English test, Sharina scores 60%. Ayshia gets 44 questions out of 80 correct. Who scores more?

21. Mike's map has a scale of 1: 30,000cm. He measures the distance on the map between two places and finds it is 8cm. How far is this in kilometres? (2 marks)

22. The Government enacted a law in 1891 and it stayed in force for 114 years before being repealed. In which year was it repealed?



Paper Notes: 11+ Maths Question Booklet (Test 8)

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

Overview

This is **Test 8** from the **Owl Tutors 11+ Maths** series, a **non-calculator paper** designed to prepare students for **GL Assessment** style entrance examinations. The paper contains **22 questions** worth **40 marks** in total, to be completed in **60 minutes**. It tests a broad range of mathematical skills including arithmetic, geometry, statistics, measurement, and algebraic reasoning.

The questions are presented as a mixture of short-answer, multiple-choice, and word problems. Several questions carry 2 or 3 marks and require extended working, whilst others are single-mark recall or identification tasks. The paper deliberately avoids repetition, moving rapidly between topics to assess fluency across the curriculum rather than deep exploration of any one area.

This paper suits students in Year 6 preparing for selective school entrance tests. It offers a realistic simulation of exam conditions and rewards careful reading, methodical working, and attention to units and simplification. The variety of question types ensures that students must demonstrate both procedural competence and problem-solving flexibility.

How this paper is organised

The paper comprises **22 questions** distributed across four pages, with a total of **40 marks** available. Most questions are worth 1 mark, but questions 2, 6, 7, 9, 10, 13, 14, 15, and 21 carry 2 or 3 marks each, reflecting their greater complexity or the need for multi-step reasoning. The mark allocation for each question is stated in parentheses where it exceeds 1 mark.

Students are given **60 minutes** to complete the paper and are reminded to show all working. The instructions emphasise that **no calculators** are permitted, so all arithmetic must be performed mentally or on paper. Questions are numbered sequentially and laid out in a clear single-column format with adequate space for brief working, though students may need to use additional paper for longer calculations.

The paper does not divide into formal sections, but the questions move fluidly between number operations, geometry, probability, measurement, and data handling. This mirrors the structure of many GL Assessment papers, where topic boundaries are deliberately blurred to test adaptability and breadth of knowledge.

Topics covered

- Converting 12-hour clock times to 24-hour format, including times past midday and after midnight
- Calculating percentages of time intervals, requiring conversion between minutes and hours
- Properties of regular polygons, specifically comparing interior angles of pentagons, squares, and octagons
- Ordering decimal numbers in descending order, including numbers with different place values
- Writing large whole numbers (greater than 60,000) in words, with correct use of commas and place value
- Probability expressed as simplified fractions, including calculating the likelihood of compound events
- Identifying cube numbers, prime numbers, and square numbers from a given list
- Calculating the mean from a partially complete data set and working backwards to find a missing value
- Volume of cubes using the formula length \times width \times height
- Converting between metric units (grams and kilograms) within word problems involving weight limits
- Forming algebraic expressions using given variables to represent real-world scenarios
- Finding the highest common factor (HCF) of two numbers
- Calculating unknown angles in triangles using the angle sum property (180 degrees)
- Estimating and reasoning about capacity in millilitres and litres
- Rounding decimal numbers to a specified number of decimal places
- Comparing percentages with fractions expressed as 'out of' statements
- Using map scales to convert distances from centimetres to kilometres
- Solving word problems involving addition of years and historical dates

How to use this paper for revision

- Practise converting between 12-hour and 24-hour clock formats, remembering that times after 12:59 pm are found by adding 12 to the hour (e.g. 9:45 pm becomes 21:45).
- When working with percentages of time, always convert all units to the same base (minutes or hours) before calculating the fraction.
- Memorise the interior angle formula for regular polygons: $(n - 2) \times 180 \div n$, where n is the number of sides, or recall that more sides means larger interior angles.
- For probability questions, write out the total number of outcomes first, then count favourable outcomes and simplify the fraction fully.
- Always check whether your answer needs to be in a specific unit (kilograms, kilometres, simplified fractions) and convert or simplify before writing your final answer.
- When finding the mean with a missing value, multiply the mean by the number of values to find the total, then subtract the sum of known values.
- In multi-step word problems, underline the question being asked and write down what you know in a list before beginning calculations.

Common mistakes to avoid

- Forgetting to add 12 when converting pm times to 24-hour format, or writing 24:45 instead of 00:45 for times past midnight.
- Leaving probability answers as unsimplified fractions (e.g. $\frac{4}{12}$ instead of $\frac{1}{3}$) or forgetting that the probability of an impossible event is zero.
- Confusing cube numbers with square numbers, or incorrectly identifying composite numbers such as 9 or 15 as prime.
- Mixing units in the final answer, such as giving a weight as '23.65' without specifying kilograms or converting grams correctly.
- Rounding 0.0999 to 0.09 instead of 0.10 when rounding to two decimal places, due to misunderstanding how rounding propagates through trailing nines.
- Calculating the angle sum of a triangle as 360° instead of 180° , or failing to subtract the two known angles from 180° .

Exam technique

Begin by reading through the entire paper quickly to identify which questions you can answer immediately and which will require more thought. Tackle the single-mark

questions first to build confidence and secure easy marks, then return to the 2-mark and 3-mark problems that demand extended working. Keep an eye on the clock and aim to spend roughly 2.5 minutes per mark, leaving at least 5 minutes at the end to check your answers.

Always write down your working, even for questions that seem straightforward. Partial marks are often awarded for correct methods even if the final answer contains a small arithmetic error, and showing your steps helps you spot mistakes during checking. If a question asks for an answer in a particular form (simplified fraction, two decimal places, kilometres), double-check you have converted or rounded correctly before moving on.

For word problems, underline key numbers and the question being asked. Sketch a quick diagram or jot down the given information in a list to avoid losing track of what you know. If you are stuck, move on rather than spending five minutes on one question; you can always return to it if time allows. In the final minutes, reread each question to confirm you have answered what was asked, not just performed a calculation.

What to revise alongside this paper

To build on the skills tested in this paper, students should revise the full range of **metric conversions** (millimetres to metres, grams to kilograms, millilitres to litres) and practise converting between units quickly without a calculator. Work on **ratio and proportion** problems, particularly those involving scaling and map work, as these underpin questions like the map-scale problem in question 21. Strengthen understanding of **polygons** by learning the interior and exterior angle formulae and being able to apply them to any regular shape.

Students should also practise **forming and manipulating algebraic expressions** from word problems, as this skill appears in question 15 and is a common feature of 11+ papers. Revisit the properties of **prime, square, and cube numbers** up to at least 100, and ensure fluency in recognising and using these in different contexts. Finally, consolidate **statistical measures** (mean, median, mode, range) through problems that require working backwards or finding missing data, as these questions often catch students out under time pressure.

For students aiming at the most competitive schools, extend practice to include **multi-step problems** that combine several topics, such as finding a percentage of a quantity and then converting units, or using angle properties in composite shapes. This paper provides a solid foundation, but combining topics in increasingly complex scenarios will prepare students for the most demanding entrance tests.

Key terms

24-hour clock, Percentage, Regular polygon, Interior angle, Descending order, Probability, Simplified fraction, Cube number, Prime number, Square number, Mean, Mode, Volume, Algebraic expression, Highest common factor (HCF), Scalene triangle, Capacity, Rounding to decimal places, Map scale, Metric conversion

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Answers

1. a. 21.45 b. 14.02 c. 20.23
2. 10%
3. c. octagon
4. 82, 8.2, 0.82, 0.082
5. Sixty-nine thousand, three hundred and three
6. Yes – he has exactly the right amount.
7. a. $\frac{1}{6}$ b. $\frac{5}{6}$ c. 0
8. a. 64 b. 3 c. 9
9. 600 men
10. 5
11. 8
12. 125cm^3
13. 23.65kg
14. 2.25kg
15. $3x + 10y$
16. 4
17. 71°
18. a cup of tea
19. a. 4.36 b. 0.10 c. 6.13
20. Sharina
21. 2.4km
22. 2005

Answer-Key Notes: 11+ Maths Answers (Test 8)

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you mark this paper and learn from each answer.

How to use this answer key

This mark scheme gives you the correct answers only. Before marking, remind your child that full working is essential: many questions carry two marks precisely because examiners want to see the method, not just the final number. When you mark, award one mark for correct working even if the final answer contains an arithmetic slip. That distinction, between a method error and a careless mistake, tells you what to practise next.

If an answer is wrong, ask your child to talk you through their working aloud. Often they will spot their own mistake. If they cannot explain why an answer is correct, use the worked examples below to show the reasoning, then set a similar question a few days later to check the concept has stuck.

The paper carries 40 marks and allows 60 minutes, so each mark represents roughly 90 seconds of thinking and writing. If your child ran out of time, that is useful diagnostic information: speed will come with confidence in methods.

Score interpretation

This paper tests the core 11+ syllabus: fractions, percentages, ratio, measures (including conversions), mean, mode, factors, basic geometry, order of operations and algebra. A score of 32 or above (80 per cent) suggests strong readiness for grammar-school entrance maths. Between 24 and 31 marks indicates solid foundations with a few gaps, typically in multi-step problems or conversions. Below 24 marks points to gaps in one or more topic areas that need targeted revision before exam day.

Look at which questions were missed. If your child lost marks on Q2, Q6, Q9 and Q21, the common thread is multi-step reasoning: converting units, working backwards or combining operations. If mistakes cluster around Q7, Q10 and Q11, probability and statistics need more practice. Single errors scattered across the paper usually mean rushes or misreads rather than topic weakness.

Remember that this is a non-calculator paper. If your child reached for mental methods but made arithmetic errors in Q13, Q14 or Q21, that is normal at this stage. Accuracy improves with timed practice and systematic checking.

Worked examples

Time, percentages and measures, Q1–6

These opening questions test whether your child can convert between units (24-hour clock, hours to minutes, millilitres to litres) and calculate percentages of quantities. **Marks are lost when students forget to convert before calculating** or leave an answer in the wrong unit. Question 6 requires two conversions (squash to water, then total volume) and a comparison, so working must be crystal clear.

Q2 : 10%

Three hours is 180 minutes. The question asks what percentage 18 minutes represents. Write the fraction $18/180$, simplify to $1/10$, then convert to 10 per cent. Many children write $18/60$ because they see '18 minutes' and think of an hour, but the question specifies *three* hours.

Q6 : Yes – he has exactly the right amount.

Ed needs four times as much water as concentrate for a 1:4 ratio. He has 400 ml of concentrate, so water needed is 1,600 ml. Total squash is $400 + 1,600 = 2,000$ ml, which equals 2 litres. The answer must state 'yes' and show the arithmetic to earn full marks.

Probability, types of number and statistics, Q7–11

Probability answers must be simplified fractions, and you must read the question carefully: 'green or yellow' means add the counts, but 'blue' means recognise that zero blue balls gives probability zero. Questions 8 and 11 test definitions (cube, prime, square, mode). Question 10 is a reverse-mean problem: if you know five scores and the mean of all six, multiply the mean by six then subtract the five known values.

Q7b : $5/6$

There are 4 green and 6 yellow balls, so 10 balls that are green or yellow. Total balls: $2 + 4 + 6 = 12$. Probability is $10/12$, which simplifies to $5/6$. Do not leave the answer as $10/12$; the question asks for simplest form.

Q10 : 5

The mean of six scores is 12, so the total of all six scores is $6 \times 12 = 72$. Add the five known scores: $11 + 12 + 15 + 15 + 14 = 67$. Subtract from 72 to find the missing score: $72 - 67 = 5$. This is a common 11+ structure: use the mean to find a missing data point.

Volume, conversions and ratio, Q12–14

These questions combine formulae (volume of a cube) with unit conversions (grams to kilograms) and ratio reasoning. **Always write your answer in the unit requested by the question.** Question 13 asks for kilograms, so 650 g must become 0.65 kg before you calculate. Question 14 is two-step: find the weight of one cup of tea, scale to coffee, then multiply by five.

Q13 : 23.65 kg

The suitcase becomes acceptable after removing 650 g, and the limit is 23 kg. So the original weight was 23 kg + 650 g. Convert 650 g to 0.65 kg, then add: $23 + 0.65 = 23.65$ kg. If you wrote 23,650 g you have the right number but the wrong unit.

Q14 : 2.25 kg

Three cups of tea weigh 900 g, so one cup of tea weighs $900 \div 3 = 300$ g. A cup of coffee weighs 1.5 times as much: $300 \times 1.5 = 450$ g. Five cups of coffee weigh $5 \times 450 = 2,250$ g, which is 2.25 kg. Show every step to earn both marks.

Algebra, factors, angles and estimation, Q15–18

Question 15 tests whether your child can write an expression without evaluating it; many children try to find a numerical answer when the question wants terms in x and y . Question 16 asks for the highest common factor (not just any common factor). Question 17 requires recall that angles in a triangle sum to 180° . Question 18 is a capacity estimate: a teaspoon is about 5 ml, a cup 300 ml, a bucket several litres.

Q15 : $3x + 10y$

Dan hires three of Ron's coaches (each with x seats) and ten of Daisy's (each with y seats). Total seats is $3 \times x + 10 \times y$, written as $3x + 10y$. Do not try to simplify further or assign numbers to x and y ; the question asks for an expression.

Q17 : 71°

In any triangle the three angles sum to 180° . You know two angles: 75° and 34° . Add them: $75 + 34 = 109$. Subtract from 180: $180 - 109 = 71^\circ$. The word 'scalene' tells you all three sides (and angles) are different, so you know the answer will not equal 75° or 34° .

Rounding, percentages, scale and time, Q19–22

Rounding to two decimal places means looking at the third decimal digit. If it is 5 or more, round up; otherwise round down. Questions 20 and 21 are multi-step: convert

Ayshia's mark to a percentage before comparing, and convert the map scale from centimetres to kilometres. Question 22 is straightforward addition once you identify that 'in force for 114 years' means add 114 to 1891.

Q19b : 0.10

0.0999 rounded to two decimal places becomes 0.10 because the third decimal place is 9, which is ≥ 5 , so you round the second place up from 9 to 10. That carries over, giving 0.10. Many children write 0.09 or 0.1, but *two* decimal places means you must show 0.10.

Q21 : 2.4 km

The scale 1:30,000 cm means 1 cm on the map represents 30,000 cm in reality. Mike measures 8 cm, so real distance is $8 \times 30,000 = 240,000$ cm. Convert to metres: $240,000 \div 100 = 2,400$ m. Convert to kilometres: $2,400 \div 1,000 = 2.4$ km. Show each conversion to demonstrate method.

Next steps

Look at every question your child answered incorrectly and decide whether the mistake was conceptual (did not know the method) or procedural (knew the method but made an arithmetic or conversion error). If more than half the errors are procedural, set five timed questions each day focusing on accuracy under pressure. If errors are conceptual, revisit the topic using a different resource (video, manipulatives, a tutor explanation) before attempting similar questions.

If your child scored above 32, extend their learning by introducing 13+ material or competition-style problems (for example, UKMT Junior Maths Challenge past papers) to maintain interest. If the score was below 24, identify the two weakest topics, work through those systematically for a fortnight, then return to this paper. Improvement will come from targeted practice, not repeating the same mixed paper.

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