

## 13+ PAST PAPER PACK

# Oundle School 13+ Maths 2021

## Complete Past Paper Pack

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Oundle School 13+ Maths. Work through this paper first.

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

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# OUNDLE

School

**2021 Academic Scholarship**

**Mathematics**

**PAPER 1**

Time allowed: 1 hour and 30 minutes

**CALCULATORS ARE NOT ALLOWED**

### **Instructions to candidates**

- You are not expected to have time to do all the questions.
- You may answer the questions in any order.
- Choose those questions which you think you can answer best.
- Remember to show your working and clearly show the method you are using.
- Give answers to 3 significant figures where necessary
- The number of marks for each question is shown in square brackets.

**Question 1** Work out the following:

a) 36% of 53

b)  $17 \times 84 + 83 \times 84$

c)  $46 \times 18 + 27 \times 36$

d)  $3\frac{1}{4} \times 1\frac{5}{9}$

[8]

**Question 2** Simplify the following expressions fully:

a)  $5xy - 2x + 4y - x + 2yx$

b)  $5x - 2(x + 4) - (x - 2)$

c)  $204x^4 \div 34x$

d)  $5x - 2x^2 + 4x(x - 2)$

[8]

**Question 3** Solve the following equations:

a)  $7x - 3 = 3x + 5(2x + 1)$

b)  $4x + 7 = \frac{1}{3}x$

c)  $7x^2 - 343 = 0$

d)  $\frac{2x+3}{1-2x} = 4$

[8]

**Question 4**

a) I think of a number and add 6. I multiply the result by 8 and get a final answer of 16.  
What was my number?

b) I think of a number, multiply it by 5 and then add 3. Squaring the result gives 64.  
What *two* numbers could I have started with?

[4]

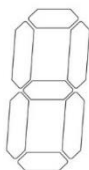
**Question 5**

Alice and Bertrand bake some cakes in the ratio 5:3. Alice sells 2 cakes for every cake that Bertrand sells. After Alice has sold 196 cakes, Alice and Bertrand have the same number of cakes remaining. How many cakes were baked to start with?

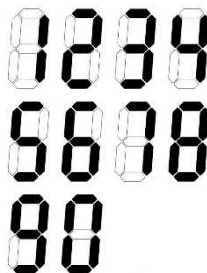
[4]

### Question 6

Old fashioned calculators displayed numbers using the template:



Each digit could be represented by filling some, or all, of the seven bars, as shown below:



The number 4 uses four bars, and the number 5 uses five bars, the number 6 uses six bars; the number of bars is equal to the value of the number.

How many two-digit numbers use the same number of bars as the value of the number?

*You should explain your answer fully.*

[4]

### Question 7

Charlotte picks 5 positive integers.

Charlotte's numbers have a:

Mean of 4

Mode of 2

Range of 7

How many different medians could Charlotte's set of numbers have?

*You should show detailed working.*

[4]

### Question 8

What is the units digit of the integer which is equal to  $(2^{34} + 5^{67})^8$  ?

*You should show detailed working.*

[4]

### Question 9

Daniel ran a 1500m race in 9 minutes 30 seconds. He ran the first 1080m of the course at a constant speed of 3 m/s. He ran the remaining part of the course at a constant speed  $v$  m/s. What is the value of  $v$ .

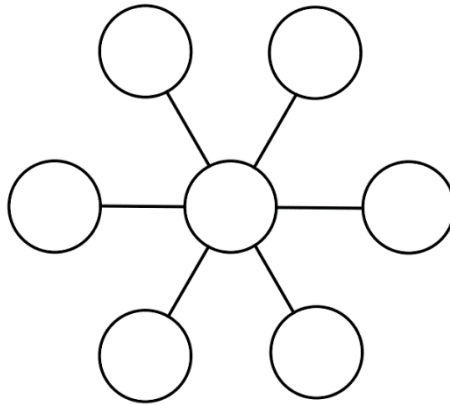
[4]

**Question 10**

The digits 1 to 7 are added to the diagram below, with one digit in each cell. Along the lines of 3 cells shown in the diagram, the numbers in the three cells must add to a common total.

What are the possible values for the common total?

*You should show detailed working.*

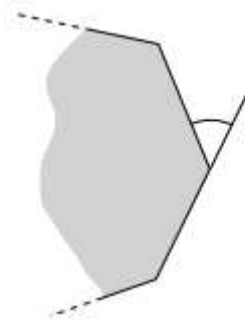


[4]

**Question 11**

The exterior angles of a triangle are in the ratio 3: 4: 5. What is the smallest interior angle?

*[An exterior angle of a polygon is the angle between one side and the next side extended, as shown in this sketch.]*



[4]

**Question 12**

The diagram shows an equilateral triangle inside a regular hexagon. The hexagon has a perimeter of  $84\text{ cm}$ . The vertices of the triangle are the midpoints of the sides of the hexagon. What is the length of the perimeter of the triangle?



**[4]**

# Paper Notes: 13+ Maths Question Paper (13+ Maths Past Paper (2021))

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 **Paper 1** of the **2021 Academic Scholarship** examination in **Mathematics**, published by **Oundle School** in Northamptonshire. It is designed for candidates applying for the **13+ Academic Scholarship**, testing mathematical ability at a level significantly beyond standard Year 8 work. The paper has a time allowance of **90 minutes** and calculators are **not permitted**.

The examination comprises **twelve questions**, each worth **4 or 8 marks**, covering a wide range of mathematical topics including arithmetic manipulation, algebraic simplification and equation solving, ratio and proportion problems, logical reasoning puzzles, geometry, and statistics. Questions progress from routine calculation to more challenging problem-solving requiring deeper insight. Candidates are explicitly told they are **not expected to complete all questions**, encouraging strategic selection of problems they can tackle best.

This paper suits students preparing for scholarship examinations at independent schools, particularly those aiming for mathematical scholarships. It demands fluency with GCSE-level algebra and a strong grasp of problem-solving techniques. The mix of straightforward and demanding questions allows differentiation between good and exceptional candidates, making it valuable practice for academically ambitious Year 8 students.

## How this paper is organised

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The paper contains **twelve questions** in total, divided into two groups by mark allocation. **Questions 1, 2, and 3** each carry **8 marks** and are subdivided into four parts (a, b, c, d). These opening questions test foundational skills: percentages, arithmetic manipulation, mixed numbers, algebraic simplification, and equation solving including linear, quadratic, and rational equations.

**Questions 4 to 12** each carry **4 marks** and present standalone problems requiring more sustained reasoning. These cover word problems (Question 4), ratio and proportion (Question 5), logical puzzles (Questions 6, 7, 8, 10), geometry (Questions 11, 12), and kinematics (Question 9). Several questions explicitly instruct candidates to **show detailed working** or **explain answers fully**, indicating that method marks are awarded even if final answers are incorrect.

Candidates have **90 minutes** total. The instructions emphasise flexibility: students may answer questions in any order and should prioritise those they can answer best. This strategic element is crucial, as attempting all questions is neither expected nor feasible for most candidates. Marks are shown in square brackets, and answers should be given to **3 significant figures where necessary**.

## Topics covered

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- Percentage calculation and application of percentages to numerical values
- Arithmetic manipulation using distributive property and factorisation (e.g.  $17 \times 84 + 83 \times 84$ )
- Operations with mixed numbers and improper fractions
- Algebraic simplification including collecting like terms and expanding brackets
- Division and simplification of algebraic expressions involving powers
- Solving linear equations with brackets and terms on both sides
- Solving quadratic equations by factorisation and taking square roots
- Solving rational equations involving algebraic fractions
- Ratio and proportion problems with multi-step reasoning
- Logical reasoning puzzles involving constraints and systematic case analysis
- Statistics including mean, mode, median, and range of data sets
- Modular arithmetic and patterns in powers (units digit problems)
- Speed, distance, and time calculations with kinematics
- Properties of exterior and interior angles in triangles
- Geometric properties of regular polygons, particularly hexagons and equilateral triangles

## How to use this paper for revision

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- Practise arithmetic shortcuts such as factorising common terms before multiplying, as demonstrated in Questions 1b and 1c. Recognising patterns saves time and reduces calculation errors.
- Strengthen your equation-solving technique by working through linear, quadratic, and rational equations systematically. Always check solutions, especially when denominators are involved.
- Revise the relationships between exterior and interior angles in polygons. Remember that exterior angles of any polygon sum to  $360^\circ$ , a key fact for Question 11.
- Work on logical reasoning puzzles without a calculator. Questions 6, 7, 8, and 10 require systematic case-by-case analysis and clear written explanation of your reasoning.
- Familiarise yourself with geometric properties of regular shapes, including how midpoints and symmetry create predictable relationships in figures like regular hexagons.
- Practise converting between fractions, decimals, and percentages mentally. Being fluent with these conversions allows you to move quickly through multi-step problems.
- Develop a habit of showing all working clearly, even for questions that seem straightforward. Method marks can be awarded even if your final answer is incorrect.

## Common mistakes to avoid

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- Forgetting to apply the distributive property in Questions 1b and 1c, leading to unnecessarily complex calculations instead of factorising out the common term (84 in 1b).
- Losing track of negative signs when expanding brackets in algebraic simplification, particularly in Question 2b where multiple sets of brackets are present.
- Dividing algebraic terms incorrectly in Question 2c by subtracting exponents without properly simplifying coefficients, or forgetting to reduce the numerical fraction.
- Failing to check solutions when solving rational equations. In Question 3d, substituting back is essential to ensure the denominator does not become zero.
- Misinterpreting ratio problems by confusing the initial ratio with rates of change. Question 5 requires careful tracking of both Alice's and Bertrand's cakes over time.
- Assuming the units digit of large powers without recognising cyclic patterns. Question 8 requires identifying the repeating cycle of units digits for powers of integers.

## Exam technique

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Begin by skimming all twelve questions to identify which ones you can answer most confidently. Because you are **not expected to complete the entire paper**, strategic selection is crucial. Start with Questions 1, 2, and 3 if you are strong in algebra and arithmetic; these carry more marks and reward fluency. If problem-solving is your strength, tackle Questions 4 to 12 first, focusing on those where you immediately see a method.

Allocate roughly **6 to 8 minutes per 8-mark question** and **3 to 4 minutes per 4-mark question**, leaving time at the end to review your work. Show all working clearly, even for straightforward calculations. Questions explicitly asking you to **explain your answer fully** or **show detailed working** (Questions 6, 7, 8, 10) require more than just a final number; examiners award method marks generously when reasoning is visible.

If you become stuck on a question, move on quickly rather than wasting time. Scholarship papers are designed to challenge even the strongest candidates, so encountering difficult questions is expected. Return to incomplete problems only after securing marks elsewhere. In geometry questions, sketch diagrams clearly and label all known values. For logical puzzles, work systematically through cases and eliminate impossibilities step by step.

## What to revise alongside this paper

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To prepare thoroughly for this paper, revise **GCSE algebra topics** including factorising quadratics, solving simultaneous equations, and manipulating algebraic fractions. Strengthen your understanding of **ratio, proportion, and percentage** problems, particularly those requiring multi-step reasoning or setting up equations from worded scenarios.

Beyond this paper, explore **geometry of regular polygons**, circle theorems, and properties of special triangles. Practise **combinatorial reasoning** and logic puzzles, which appear frequently in scholarship examinations. Work on **number theory** concepts such as divisibility rules, prime factorisation, and modular arithmetic patterns, all of which underpin questions like Question 8.

For students aiming higher, investigate **UKMT Intermediate Mathematical Challenge** past papers and **GCSE Higher tier problem-solving questions**. These resources develop the flexible thinking and pattern recognition essential for scholarship success. Familiarity with Olympiad-style problems, though more advanced, can also build confidence in tackling unfamiliar question types.

## Key terms

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**Percentage, Distributive property, Mixed numbers, Like terms, Factorisation, Linear equation, Quadratic equation, Rational equation, Ratio, Proportion, Mean, Mode, Median, Range, Units digit, Modular arithmetic, Exterior angle, Interior angle, Regular hexagon, Equilateral triangle, Midpoint, Speed**

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# OUNDLÉ

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School

**ACADEMIC SCHOLARSHIP 2021**

**MATHEMATICS**

**PAPER 2**

Time allowed: 2 hours

**CALCULATORS ARE NOT ALLOWED**

### **Instructions to candidates**

- Do not expect to be able to answer every question.
- Marks available for each question are shown in square brackets at the end of each question.
- More marks will be awarded for full answers to a question rather than several fragments.
- Where appropriate aim to explain your answers as fully as possible.

1. This question is about recurring decimals. For example the decimal  $0.\dot{1} = 0.111111.....$  corresponds to the fraction  $\frac{1}{9}$

(i) What is  $\frac{4}{9}$  expressed as a decimal?

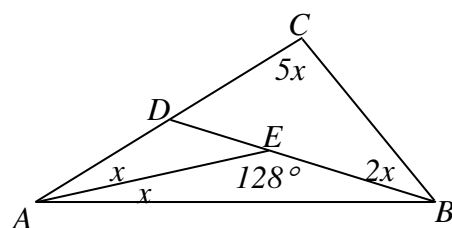
(ii) Use your answer to part (i) to express  $\frac{2}{45}$  as a decimal.

(iii) What fraction does the decimal  $0.5\dot{4} = 0.544444444.....$  correspond to? [8]

2. i) Find the whole number  $a$  such that  $\frac{1}{a} + \frac{1}{a} = \frac{1}{11}$

ii) Find two different whole numbers  $b$  and  $c$  such that  $\frac{1}{b} + \frac{1}{c} = \frac{1}{11}$ . [6]

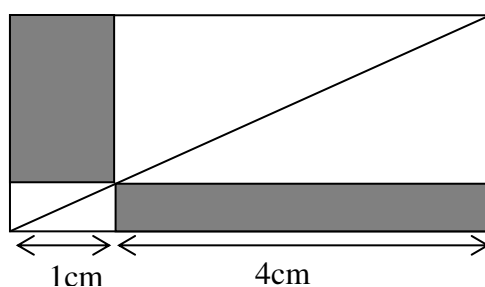
3. This question refers to the diagram on the right.  
 Angle  $\hat{AEB} = 128^\circ$ ,  $\hat{CAE} = \hat{EAB} = x^\circ$ ,  $\hat{DBC} = 2x$   
 and  $\hat{BCD} = 5x$  as shown.



- a) Express in terms of  $x$  the angle  $\hat{ABE}$   
 b) By considering the angles in the triangle  $ABC$ , form an equation and find  $x$ .

[6]

4. Express the area which is shaded in the diagram below as a fraction of the area of the whole rectangle. Measurements have been made of the length of the rectangle but not the width.



[6]

5. Look at the sequences in the table below

	1 <sup>st</sup> term	2 <sup>nd</sup> term	3 <sup>rd</sup> term	4 <sup>th</sup> term	5 <sup>th</sup> term
$n$	1	2	3	4	5
<b>Sequence A</b>	3	6	9	12	15
<b>Sequence B</b>	2	8	18	32	50
<b>Sequence C</b>	-1	2	9	20	35

- (i) Find the 6<sup>th</sup> term and the 7<sup>th</sup> terms of each sequence.
- (ii) Explain in words how *Sequence C* can be obtained from *Sequence A* and *Sequence B*.
- (iii) Find an expression involving  $n$  for the  $n^{\text{th}}$  term of *Sequence B*.
- (iv) Find the 100<sup>th</sup> term of *Sequence C*. [9]

6. Five beads each numbered 1, 2, 3, 4 and 5 respectively are placed in a box marked  $X$ . Three beads each numbered 1, 2 and 3 respectively are placed in a box marked  $Y$ .

One bead is taken randomly from box  $X$  and then one from box  $Y$ . The results are used to produce the co-ordinates of a point on the positive  $x$ -axis and  $y$ -axis respectively. For example, the point (2, 1) would be the result of taking a 2 from box  $X$  and a 1 from box  $Y$ .

In the following questions, leave your answer as a fraction in its simplest form. Calculate the probability that after one selection from each box point,

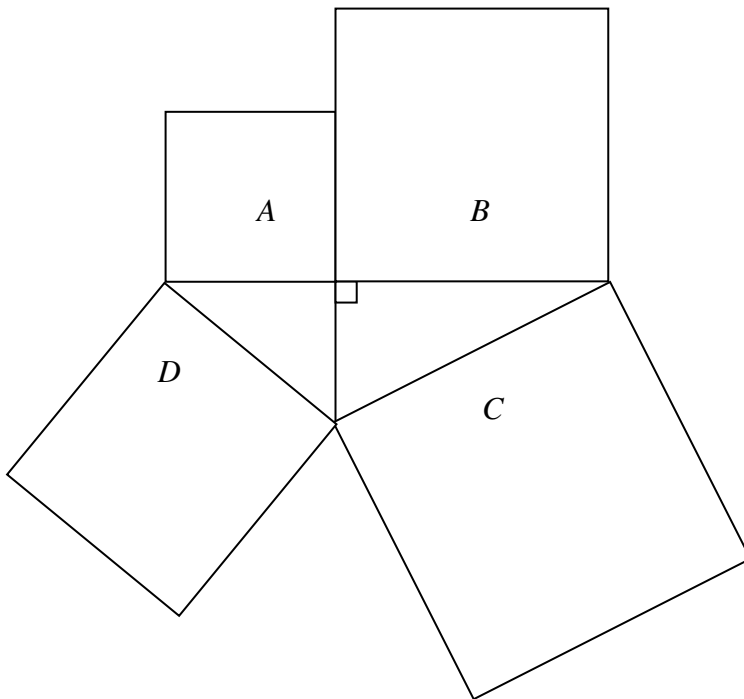
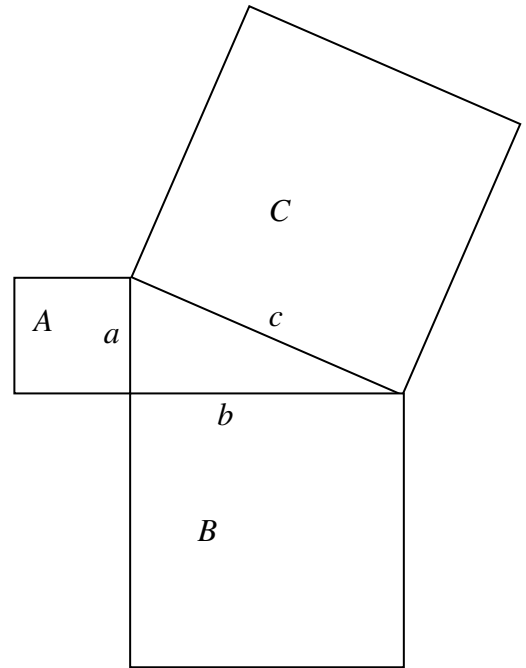
- (i) the selected point is (2, 1)
- (ii) the selected point lies on the line with equation  $x = 2$
- (iii) the selected point lies on the line with equation  $y = 3$
- (iv) the selected point lies on the line with equation  $y = x$
- (v) the selected point lies on the line with equation  $y = 2x - 1$  [9]

7. A lake contains 300 fish, of which  $c$  are carp and all the others are pike. If 100 more carp are added to the lake, the probability of catching a carp is doubled. How many carp were originally in the lake? [6]

8. Pythagoras's Theorem states that in a right-angled triangle, the sum of the squares of the two shorter sides equals the square of the hypotenuse (the longest side). For the diagram, this can be stated as  $a^2 + b^2 = c^2$ . Another way to express this is

**Area of square A + Area of square B = Area of square C.**

Find a similar relationship between the areas of **all** the squares in the following diagrams. Explain your answer.



[4]

9. (a)  $n$  is a positive even number. The sum of  $n$  and the next two even numbers above it is 54.
- Write down an equation for  $n$
  - Find  $n$ .
- (b)  $m$  is another positive even number. When the even number below  $m$  is multiplied with the even number above  $m$  the result is 396.
- Write down an equation for  $m$ .
  - Find  $m$ .

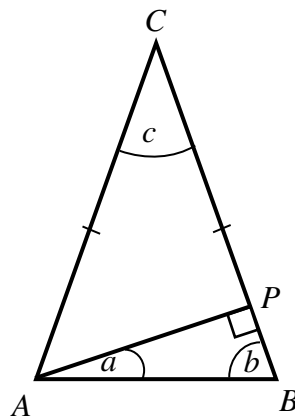
[9]

10. (i) A person travels 60 miles by train at 120 miles per hour and then takes a bus for 45 miles at 30 miles per hour. What is their average speed for the journey?

(ii) Three Runners, named Bolt, Colt and Dolt, run a 100m race. Each travels at their own constant speed throughout the race. They finish the race in alphabetical order. Ten metres separates Bolt from Colt when Bolt crosses the finish line and Ten metres separates Colt from Dolt when Colt crosses the finish line. What is the distance between Bolt and Dolt when Bolt crosses the finish line?

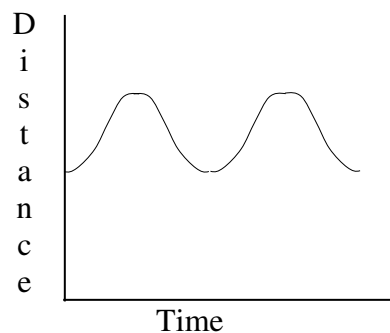
Hints: The answer is not 20m.  $speed = \frac{distance}{time}$  [8]

11. In the isosceles triangle shown,  $CA = CB$ .  
From  $A$ , a line  $AP$  has been drawn to meet the opposite side  $BC$  at right angles.



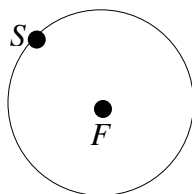
Show that angle  $a$  is always half of angle  $c$ . [6]

12. A man runs at constant speed once anticlockwise around a track starting at a point  $S$ . His coach stands at a fixed point  $F$ . A rough graph is drawn to show the shortest distance between the two men against time. An example is shown below.

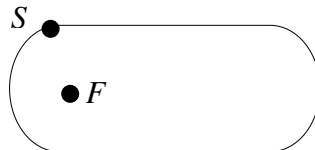


Draw the corresponding graphs for the following track lay outs and starting positions.

- (i) [6]



- (ii)





15 Use divisibility rules to find the missing number (represented by an asterisk in the answer) to these calculations. In each case make it clear which rules you have used and how you have applied them. No marks will be awarded for calculating the multiplication.

(i)  $5 \times 6 \times 7 \times 8 \times 9 \times 10 \times 11 \times 12 \times 13 \times 14 = 3632 * 28800$

(ii)  $7 \times 8 \times 9 \times 10 \times 11 \times 12 \times 13 \times 14 \times 15 \times 16 = 2905 * 430400$

[8]

# Paper Notes: 13+ Maths Question Paper (13+ Maths Past Paper (2021))

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 **Paper 2** of the **Academic Scholarship 2021** examination in **Mathematics**, published by **Oundle School** in Northamptonshire. It is designed for candidates applying for **13+ entry** (Year 9 entry) and represents a demanding assessment pitched at scholarship level. The paper tests a wide spectrum of mathematical topics, from number theory and recurring decimals through algebra, geometry, probability, and sequences.

The format is entirely **free-response**, with fifteen questions carrying varying mark allocations. Candidates are explicitly told not to expect to answer every question, reflecting the stretch nature of the scholarship paper. No calculator is allowed, so all work must be completed by hand or with mental arithmetic. The two-hour time limit demands selective engagement and efficient working.

This paper is ideal for strong Year 8 mathematicians aiming for academic scholarships at independent senior schools. It rewards clarity of explanation as well as correct answers, with the rubric stating that more marks will be awarded for full, well-explained solutions rather than fragments. The questions span routine technique to genuine problem-solving challenges, requiring both breadth and depth of mathematical understanding.

## How this paper is organised

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The paper comprises **fifteen questions** with a total time allowance of **two hours**. Mark allocations are shown in square brackets at the end of each question, ranging from **4 marks** (questions 8 and 13) to **9 marks** (questions 5, 6, 9, and 10). Most questions carry 6 to 8 marks. The distribution suggests candidates should spend roughly proportionate time on higher-mark questions, though pacing will vary by individual strength.

The paper is structured as a continuous set of free-response problems without formal sectioning. Questions are numbered sequentially and presented with diagrams where needed. Several questions contain multiple parts (labelled i, ii, iii, etc.), allowing candidates to earn partial credit even if they cannot complete every step. The instructions emphasise that full explanations will be rewarded, so working must be shown clearly.

The layout is straightforward, with ample white space for working. Diagrams are provided for geometry questions (3, 4, 8, 11, 12, 13, 14), and tables or structured data appear in questions 5 and 6. The absence of multiple-choice or short-answer formats means all reasoning must be written out in full, testing both mathematical skill and clarity of communication.

## Topics covered

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- Recurring decimals: converting between fractions and recurring decimal representations, working with repeating digits
- Fraction algebra: solving equations involving unit fractions and finding whole-number solutions
- Angle geometry: angle chasing in triangles with intersecting lines, forming and solving algebraic equations from angle relationships
- Area and fractions: determining shaded fractions in geometric diagrams using proportional reasoning without given heights
- Sequences and quadratic patterns: finding  $n$ th terms, recognising quadratic sequences, combining sequences arithmetically
- Coordinate probability: calculating probabilities of discrete coordinate outcomes and testing satisfaction of linear equations
- Algebraic word problems: forming and solving equations from probability and ratio contexts involving fish populations
- Pythagorean relationships: extending Pythagoras's Theorem to more complex square configurations and proving area relationships
- Quadratic and product equations: forming and solving equations from sums and products of consecutive even numbers
- Speed, distance, and time problems: calculating average speeds and solving relative motion problems with constant speeds
- Proof in isosceles triangles: using angle properties, right angles, and algebra to prove relationships between angles
- Distance-time graphs: interpreting and sketching graphs of shortest distance between moving and stationary points on varied track shapes
- Spatial dissection puzzles: dividing irregular shapes into congruent parts by geometric reasoning
- Nested square areas: determining fractional areas in recursive square patterns
- Divisibility rules: applying rules for divisibility by 3, 4, 5, 8, 9, and 11 to deduce missing digits in large products

## How to use this paper for revision

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- Revise **recurring decimal conversions** thoroughly, especially the standard fractions like  $\frac{1}{9}$ ,  $\frac{1}{11}$ , and their multiples, as these underpin question 1.
- Practise **angle-chasing in triangles** with algebraic angles, ensuring you can form and solve equations from angle sum properties and straight-line angles.
- Strengthen your understanding of **quadratic sequences**, particularly recognising patterns like  $2n^2$ ,  $n^2 + n$ , and how differences between terms reveal the underlying rule.
- Work through **coordinate probability** problems where you must count favourable outcomes systematically, especially when testing whether points lie on a given line.
- Familiarise yourself with **Pythagoras's Theorem extensions**, including problems where multiple squares are attached to polygons and you must find area relationships.
- Revise **divisibility rules** for 3, 4, 8, 9, and 11, and practise using them in combination to deduce missing digits in large products.
- Practise forming **equations from word problems**, particularly those involving averages, ratios, probabilities, and consecutive numbers, then solving them algebraically.

## Common mistakes to avoid

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- In recurring decimals, confusing which digits recur: **0.54**' means  $0.54444\dots$ , not  $0.545454\dots$ . The dot marks the single recurring digit.
- In angle problems, forgetting to apply the **exterior angle theorem** or failing to account for all angles at intersections, leading to missing terms in equations.
- In probability questions, counting outcomes carelessly or forgetting to simplify fractions; always check that the denominator reflects the total number of possible outcomes.
- In speed problems, calculating **average speed** as the mean of the two speeds rather than total distance divided by total time, which gives incorrect results.
- When proving angle relationships, stating results without justification; examiners expect clear reasoning referencing properties like 'base angles in an isosceles triangle' or 'angles in a triangle sum to  $180^\circ$ '.
- In divisibility problems, applying rules incorrectly or forgetting to combine them; for example, checking divisibility by 8 requires inspecting the last three digits, not just the last two.

## Exam technique

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Begin by scanning the entire paper and marking questions where you feel confident, then tackle those first to bank marks quickly. **Scholarship papers** are designed to stretch the strongest candidates, so encountering difficult questions is normal and expected. Aim to spend roughly one mark per minute as a rough guide, but adjust for multi-part questions where early parts may be easier.

Show all working clearly, even for straightforward calculations, because partial credit is available and examiners reward logical structure. If a question asks you to **explain** or **show** something, write in sentences that make your reasoning explicit. For example, in geometry proofs, state which angle properties or theorems you are using at each step. Label diagrams carefully and refer to them in your written explanations.

If you become stuck on a question, move on and return later if time permits. Attempting fragments of many questions is explicitly discouraged in the rubric; instead, aim for complete solutions to a smaller number of questions. Read multi-part questions carefully to check whether later parts depend on earlier answers or can be attempted independently. Finally, reserve five minutes at the end to review calculations for arithmetic errors and ensure all answers are clearly indicated.

## What to revise alongside this paper

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Students should consolidate their understanding of **algebraic manipulation**, including forming and solving linear and quadratic equations, as these skills underpin many questions. Revise **geometric proof techniques**, particularly angle properties in triangles, quadrilaterals, and with parallel lines, as well as area and perimeter relationships. Strengthen number skills by revisiting **prime factorisation**, highest common factors, lowest common multiples, and fraction arithmetic, all of which support divisibility and recurring decimal work.

For probability, ensure fluency with **sample space diagrams** and systematic counting methods, and practise expressing probabilities as simplified fractions. Extend your knowledge of sequences by exploring **arithmetic and quadratic progressions** and their applications. Work on problem-solving stamina by tackling multi-step challenges that combine topics, such as geometry with algebra or number theory with reasoning.

Finally, explore **classic problem-solving techniques** such as working backwards, using symmetry, and testing special cases. Scholarship papers reward creativity and persistence, so practising with past papers from a range of independent schools will build both technical skill and confidence under timed conditions.

## Key terms

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**Recurring decimal, Unit fraction, Angle sum of a triangle, Exterior angle, Quadratic sequence, nth term, Probability, Coordinate geometry, Pythagoras's Theorem, Hypotenuse, Isosceles triangle, Average speed, Divisibility rules, Consecutive numbers, Proof**

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