

11+ PRACTICE PACK

OWL Tuition Test 1

11+ Maths Complete Practice Pack

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11 + Entrance Examination
Sample Paper 1
Mathematics
Total Marks: 96
Time allowed: 1 hour

Information for parents:

This sample paper has been created for children who are embarking on the 11+ exam.
The questions within the paper follow Level 4-5 of the National Curriculum and cover the majority of the KS2 curriculum.

There is a big variation in the level of difficulty amongst different schools' 11+ papers and this paper is designed to reflect the standard level of entry at 11+.

Full name



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1. Answer the questions below. You can show your working on the space provided.

a. $14 + 34 = \underline{\quad}$

b. $\underline{\quad} + 25 = 78$

c. $23 \times 3 = \underline{\quad}$

d. $34 + \underline{\quad} = 12 + 45$ 4 marks

2. Complete the number sequences.

a. 8, 12, 16, 20, $\underline{\quad}$

b. 9, 12, $\underline{\quad}$, 18, 21

c. 12, 18, $\underline{\quad}$, 30, 36, $\underline{\quad}$ 4 marks

3a. Write down the number which is 20 more than 291 1 mark

b. Write down the number which is 10 less than 1105 1 mark



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4. Work out the following:

a. $\underline{\quad} \times 54 = 540$

b. $5400 \div \underline{\quad} = 54$

c. $5400 \div \underline{\quad} = 540$

d. $5.4 \times \underline{\quad} = 540$

4 marks

5. The temperature in Bob's house is 4 degrees. As the weather turns cold, this drops by 10 degrees. What is the temperature in Bob's house now?

2 marks

6. Write the correct number to match the description. Each number can only be used once.

1, 7, 13, 16, 25

prime number

square number

cube number

multiple of 8

the median of all 5 numbers

5 marks

7. Order these numbers from smallest to biggest

0.1 0.01 1.1 1.01 1.11

2 marks



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8a Sandy has 20 sweets. She gives $\frac{1}{5}$ of them to her friend Alex.
How many does Alex get? 2 marks

b. With her remaining sweets, Sandy gives 25% to her brother. How many does her brother get? 2 marks

c. Sandy has now given away some of her sweets to Alex and her brother. She rearranges her remaining sweets into bags. Each bag can take 5 sweets, how many bags will Sandy need to store all her sweets? 2 marks

9. Complete this table so that the value in each row is equal.

fraction	decimal	percentage
$\frac{1}{2}$		
	0.75	
		30%
	0.04	
$\frac{1}{5}$		

6 marks

10 Here are the ingredients needed to make a cake for 5 people.

200g butter
400g flour
350g sugar
1 teaspoon of vanilla extract

a. How much flour would you need to make a cake for 10 people?

2 marks

b. How much of each ingredient would you need to make a cake for 1 person?

_____g butter _____g flour
_____g sugar _____ tsp vanilla extract

4 marks

c. How much butter would you need to make a cake for 2?

2 marks

d. James wants to make a cake but only has 160g of butter. How many people will his cake feed?

2 marks

e. Mrs. White wants to make a cake for 3, she only has 80g of flour. How much more flour does she need to be able to make her cake?

2 marks



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11. Sam buys

- 1 comic book costing £1.15
- 1 pencil case costing 81p
- 2 water bottles

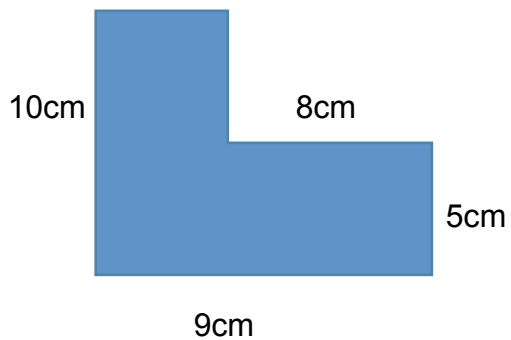
Sam pays with a £5 and gets £1.78 change.

What is the cost of one water bottle? Show your workings here:

3 marks

12. Work out the area and perimeter of this shape.

(Not drawn to scale)

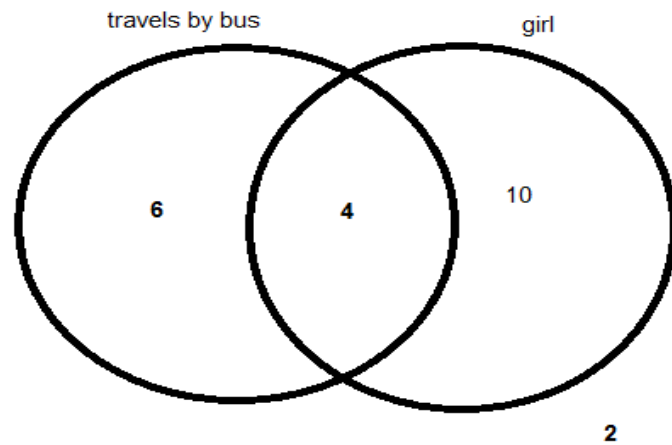


Area _____

Perimeter _____

4 marks

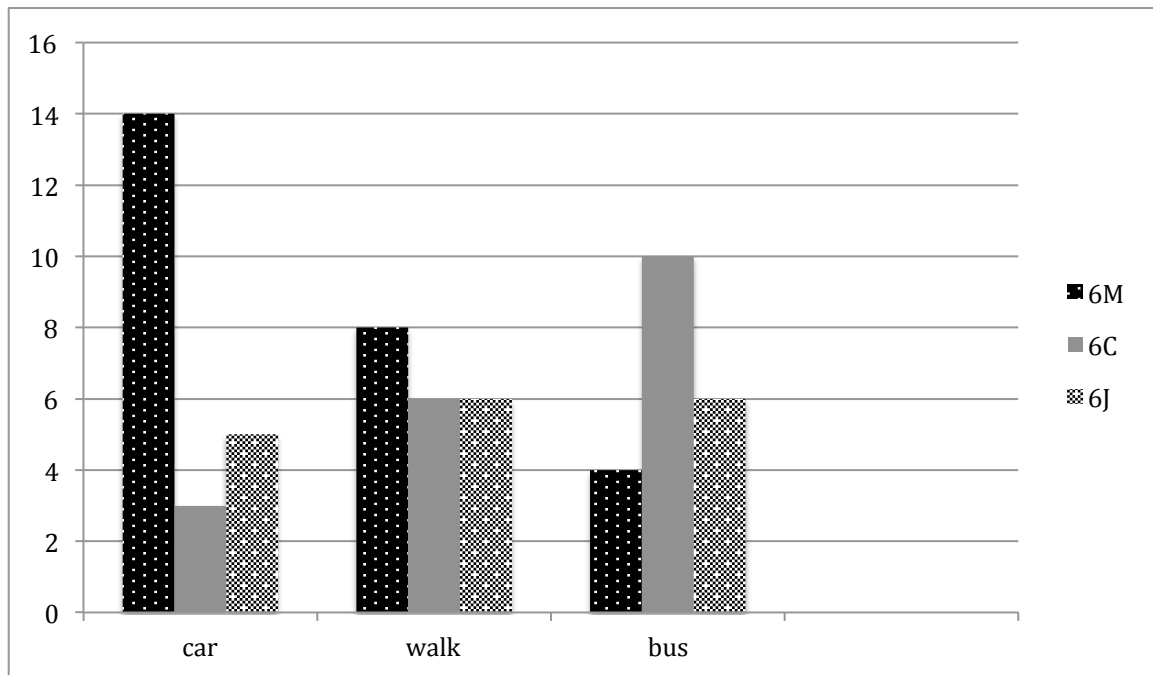
13. Class 6J conducts a survey on how children in the class come to school and present their results using a Venn diagram



- a How many girls travel by bus to school? _____
- b How many children come to school by bus? _____
- c. How many students are in Class 6J? _____
- d How many boys are there in Class 6J? _____
- e Two new students join the class. Dave travels to school by car and Alice walks to school. Correct the numbers in the Venn diagram to reflect these new results.

6 marks

14. Year 6 decide to collect data about how children in the year group travel to school. Their results are shown below:



- How many more children in 6M walk than 6C?
- How many children in Year 6 come to school by car?
- What is the most common method of travel in class 6M?
- What is the common method of travel in Year 6?
- How many children are in Year 6?

5 marks

15. May has 5 coins in her bag. She has one 50p coin, two 20p coins, one 10p coins and a 5p coin.

a) What is the total value of all the coins in her bag?

1 mark

b) What percentage of the coins are 20p coins?

1 mark

One coin is picked at random. As a fraction, write the probability that the coin May picks will be:

i) a 10p coin _____

ii) is not a 20p coin _____

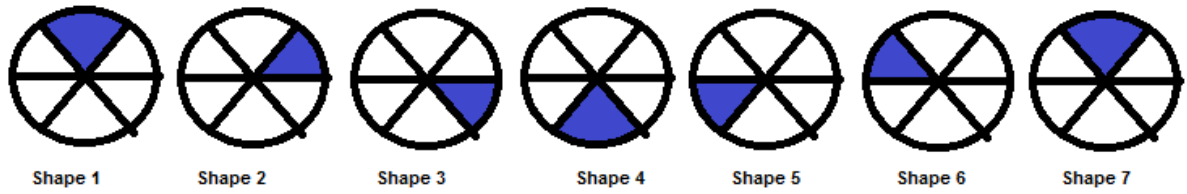
iii) a coin worth less than £1 _____

3 marks

16. Gemma thinks of a number. She adds 3 to her number, and then multiplies the result by 5. The answer is 30. What is Gemma's number?

2 marks

17. This is the start of a pattern:



Circle the picture which would be the 10th shape in the pattern



Circle the picture which would be the 15th shape in the pattern



Circle the picture which would be the 27th shape in the pattern.

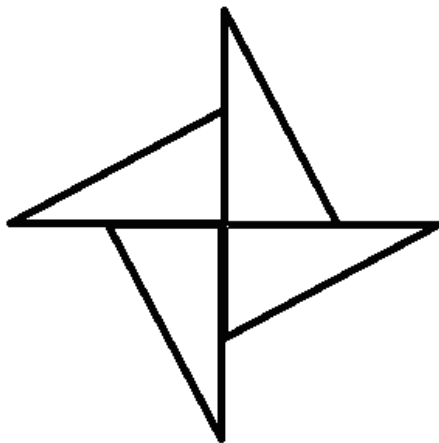
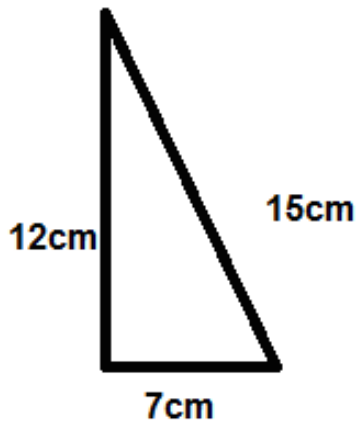


Circle the picture which would be the 42nd shape in the pattern.



12 marks

18. This is a right angled triangle. Using 4 of these triangles, Sanjit creates this shape below. What is its perimeter and area?



Perimeter _____

4 marks

Area _____

4 marks

19. A group of children decide to play a board game but only two boys and two girls can play at the same time.

Alfred will only play with Heather.
Heather won't play if Ben is playing.
Ben won't play if John or Clara plays
John will only play if Zara plays
Zara doesn't mind who she plays with.

Which 2 boys and which 2 girls play the board game?

4 marks

Paper Notes: 11+ Maths Question Booklet (Test 1)

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

Overview

This is an **11+ Maths practice paper** published by **Owl Tutors**, designed for pupils preparing to sit **GL Assessment**-style entrance examinations for selective secondary schools. The paper consists of **19 questions** worth a total of **96 marks** and should be attempted in **one hour**, mirroring the time pressure of real entrance tests. It covers material aligned with **Levels 4 to 5 of the National Curriculum** and addresses the majority of the **Key Stage 2 maths syllabus**.

Questions span a wide range of mathematical skills: basic arithmetic operations (addition, subtraction, multiplication, division), fractions and percentages, decimals, negative numbers, sequences, geometry (area and perimeter of compound shapes), data handling (Venn diagrams and bar charts), ratio and proportion, and multi-step problem solving. Many questions require careful interpretation of real-world contexts such as shopping, baking recipes, temperature, and probability.

This paper is ideal for pupils in Year 6 who are embarking on 11+ preparation, particularly those targeting grammar or independent schools that use GL Assessment materials. The level of difficulty reflects a standard entry threshold, so it serves as a reliable benchmark for pupils early in their revision. Parents and tutors will find it useful for identifying strengths and gaps across the KS2 curriculum.

How this paper is organised

The paper comprises **19 numbered questions** totalling **96 marks**, with individual questions worth between 1 and 12 marks depending on complexity. The layout is clean and spacious, providing ample room for working out, and all measurements, diagrams, and tables are clearly labelled. Questions progress roughly in difficulty, starting with straightforward arithmetic and sequences, then moving into fractions, percentages, and multi-step word problems, before concluding with more demanding geometry, data interpretation, and logical reasoning tasks.

No separate sections divide the paper, but there is a natural thematic grouping: questions 1 to 4 focus on number operations and sequences; questions 5 to 9 cover negative numbers, prime/square/cube identification, ordering decimals, and fraction-decimal-percentage conversions; questions 10 to 12 test ratio, proportion, and money problems; questions 13 and 14 assess data handling skills (Venn diagrams and bar charts); question 15 introduces probability; question 16 requires algebraic reasoning

(working backwards); question 17 is a pattern-recognition challenge worth 12 marks; and questions 18 and 19 demand geometric calculation and logical deduction respectively.

Pupils should aim to spend roughly one minute per mark, though some questions (particularly question 17 and the multi-part recipe question) will require more time. The paper is intended to be sat under timed conditions to simulate the pressure of a real examination.

Topics covered

- Basic number operations: addition, subtraction, multiplication, and division with whole numbers, including inverse operations and solving for missing values
- Number sequences: recognising and completing arithmetic sequences with constant differences (e.g. 8, 12, 16, 20...)
- Negative numbers: understanding temperatures below zero and calculating changes across zero
- Properties of numbers: identifying prime numbers, square numbers, cube numbers, multiples, and calculating the median of a small data set
- Ordering decimals: arranging numbers such as 0.01, 0.1, 1.01, 1.1, 1.11 from smallest to largest
- Fractions, decimals, and percentages: converting between the three forms (e.g. $\frac{1}{2}$, 0.5, 50%) and completing tables of equivalent values
- Calculating fractions and percentages of quantities: finding $\frac{1}{5}$ of 20 sweets, 25% of remaining sweets, and understanding part-whole relationships
- Ratio and proportion: scaling recipes up and down (e.g. calculating ingredient quantities for 1, 2, or 10 people from a base recipe for 5), solving inverse proportion problems (e.g. how many people can be served with 160g butter)
- Money problems with mixed units: calculating total costs in pounds and pence, finding change, and working backwards to determine the price of individual items from a total
- Area and perimeter of compound shapes: calculating both measures for L-shapes and composite figures formed from triangles, including recognising right-angled triangles and using the formula for area ($\frac{1}{2} \times \text{base} \times \text{height}$)
- Data interpretation: reading and extracting information from Venn diagrams (understanding intersections and complements) and grouped bar charts (comparing categories across multiple groups)
- Probability: expressing the likelihood of events as fractions (e.g. the probability of picking a 10p coin from a bag of five coins)
- Algebraic reasoning: working backwards from a final result through inverse operations (e.g. if $(x + 3) \times 5 = 30$, find x)
- Pattern recognition and sequences: identifying repeating cycles in visual patterns and determining which shape appears at a given position (10th, 15th, 27th, 42nd)
- Logical reasoning and constraint satisfaction: solving problems involving multiple conditions and exclusions (e.g. determining which children can play together given a set of rules)

How to use this paper for revision

- Practise converting between fractions, decimals, and percentages until you can do so quickly and without error. Make a reference card with common conversions ($1/2 = 0.5 = 50\%$, $1/4 = 0.25 = 25\%$, etc.) and memorise it.
- When tackling multi-step word problems such as the recipe question, underline or highlight the key information and plan your steps before calculating. Write down intermediate answers clearly so you can check each stage.
- For area and perimeter of compound shapes, sketch the shape and break it into simpler rectangles or triangles. Label every side length carefully, working out missing measurements using subtraction where necessary.
- Read Venn diagrams methodically: the overlapping section shows items in both sets, each outer section shows items in only one set, and the total is the sum of all regions. Always double-check which region the question is asking about.
- In pattern-recognition questions, identify the length of the repeating cycle first (e.g. every 6 shapes, every 3 shapes), then use division and remainders to find which shape appears at a given position. For example, if the cycle repeats every 6, position 27 is $27 \div 6 = 4$ remainder 3, so it's the 3rd shape in the cycle.
- For money questions involving change, add up the items first, then subtract from the amount paid. Always convert pence to pounds (or vice versa) before adding: 81p becomes £0.81.
- Work backwards problems (like question 16) require you to reverse each operation in turn: if the final step was multiply by 5, start by dividing 30 by 5; if the previous step was add 3, subtract 3 from your result.

Common mistakes to avoid

- Confusing the order when converting between units or scaling recipes. For example, if the recipe for 5 people uses 200g butter, for 1 person you divide by 5 (not multiply), giving 40g, not 1000g.
- Miscounting regions in Venn diagrams: forgetting to include the overlap when asked for the total in 'travels by bus' or double-counting when calculating the overall class size.
- Calculating area or perimeter incorrectly for compound shapes by treating the whole figure as a simple rectangle, or forgetting to subtract the cut-out section when finding area.
- In pattern problems, failing to spot the repeating cycle and instead trying to draw out all shapes up to the 27th or 42nd position, which wastes time and increases error risk.
- Mixing up 'not a 20p coin' with 'a 20p coin' in probability questions, or forgetting to simplify fractions (e.g. writing $\frac{3}{5}$ rather than leaving an unsimplified $\frac{3}{5}$ when it is already in lowest terms).
- Rushing through sequences and writing the next number without checking the pattern: in question 2c, the sequence increases by 6 each time, so missing values are 24 and 42, not arbitrary guesses.

Exam technique

Begin by scanning the entire paper to identify questions you find straightforward and those that look more challenging. Tackle the easier questions first to build confidence and bank marks quickly; question 1 (basic arithmetic) and question 2 (sequences) are ideal starting points. Aim to spend about one minute per mark as a rough guide, so a 4-mark question should take approximately four minutes. If you become stuck on a question, move on and return to it later rather than losing precious time.

Show all your working clearly, even for questions where you are confident. Examiners often award method marks if the final answer is incorrect, and writing each step helps you spot mistakes when checking. Use the space provided on the page rather than squashing work into margins. For multi-part questions such as question 10 (the recipe scaling problem) or question 8 (Sandy's sweets), treat each sub-question independently and check your answer is sensible in context (e.g. 80g of butter cannot feed 50 people).

Leave time for a final review. In the last five minutes, revisit any questions you skipped and check calculations for careless errors (such as misplaced decimal points or

incorrect addition). Pay particular attention to units (converting pence to pounds, grams to the correct scale) and ensure you have answered what the question actually asks. For example, if a question requests the cost of one water bottle, do not write the cost of two bottles. Practising under timed conditions with this and similar papers will help you develop a sustainable pace and reduce anxiety on exam day.

What to revise alongside this paper

To consolidate the skills tested in this paper, revise **times tables up to 12×12** until recall is instant, as fluent multiplication underpins many questions (scaling recipes, calculating area, working with fractions). Practise converting between fractions, decimals, and percentages using grids and pie charts, and explore more complex equivalent forms such as $\frac{3}{8} = 0.375 = 37.5\%$. Extend your understanding of **negative numbers** by working with number lines and real-world contexts (elevations below sea level, bank overdrafts, temperatures in winter climates).

For geometry, move beyond simple rectangles to calculate the area and perimeter of **triangles, parallelograms, and trapeziums**, and practise decomposing irregular polygons into combinations of these shapes. Review **data handling** by interpreting pie charts, line graphs, and two-way tables, and practise drawing conclusions from data rather than simply reading off values. Work on **problem-solving strategies** such as working backwards (as in question 16), using bar models to visualise fraction and ratio problems, and checking answers by substitution or estimation.

Once confident with this paper, progress to more demanding 11+ materials that include topics such as algebra (solving simple equations, substitution into formulae), angles (calculating missing angles in polygons and around points), and multi-step reasoning problems involving speed, distance, and time. Regular timed practice with a variety of question styles will build both accuracy and confidence ahead of entrance examinations.

Key terms

Prime number, Square number, Cube number, Median, Percentage, Fraction, Decimal, Sequence, Negative number, Perimeter, Area, Compound shape, Venn diagram, Probability, Ratio and proportion, Inverse operation

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**11 + Entrance Examination
Sample Paper 1
Mathematics Marking Scheme**

Total Marks: 100

- 1a. 48**
- b. 53**
- c. 69**
- d. 23**
- 2a. 24**
- b. 15**
- c. 24, 42**
- 3a. 311**
- b. 1095**
- 4a. 10**
- b. 100**
- c. 10**
- d. 100**
- 5. - 6 degrees**
- 6. prime number 7, square number 25, cube number 1,
multiple of 8 =16, median of all 5 numbers 13**
- 7. 0.01 0.1 1.01 1.1 1.11**
- 8a. 4**
- b. 4**
- c. 3**



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9.

fraction	decimal	percentage
$\frac{1}{2}$	0.5	50%
$\frac{3}{4}$	0.75	75%
$\frac{3}{10}$	0.3	30%
$\frac{4}{100}$ or $\frac{1}{25}$	0.04	4%
$\frac{1}{5}$	0.2	20%

10a. 800g

b. 40g butter, 80g flour, 70g sugar, $\frac{1}{5}$ tsp vanilla extract

c. 80g

d. 4

e. 160g

11. £63p.

3 marks for the correct answer and showing workings.

2 marks for correct answer but not shown workings

1 marks for the correct calculations but incorrect method (Eg. found the cost of 2 water bottles but forgot to divide this by 2).

12. Area = 50cm^2

Perimeter = 38cm



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13a. 4

b. 10

c. 22

d. 8

e. 10 in the right section now becomes 11.

2 in the area outside the Venn diagram becomes a 3.

14a. 2

b. 22

c. car

d. car

e. 62

15a. £1.05 or 105p

b. 40%

i. $\frac{1}{5}$

ii. $\frac{6}{10}$

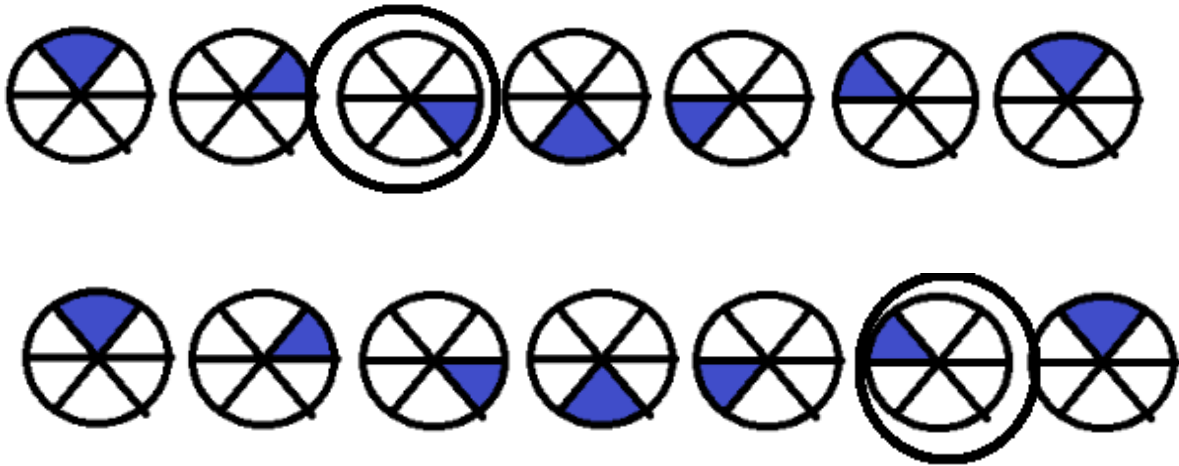
iii. 1

16. 3

17. 8

18.a.





19. Perimeter = 80cm

Area = 168 cm²

21. Boys are: Alfred and John

Girls are: Zara and Heather.

Answer-Key Notes: 11+ Maths Answers (Test 1)

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 lists correct answers and, for several questions, includes partial-credit guidance (for example, Q11 awards 3, 2 or 1 mark depending on working shown). When marking your child's work, **look first at the final answer, then check the method**. A right answer reached by guesswork or a copied pattern deserves less credit than a wrong answer with sound reasoning. For questions 1 to 10, which test fluency, one mark per part is standard; mistakes here usually signal careless arithmetic rather than deeper gaps. Questions 11 onwards are multi-step problems; here the mark scheme often rewards method marks, so read the guidance carefully.

If the paper was completed under timed conditions, note which questions were left blank or rushed in the final minutes; stamina and time-management are as important as knowledge at 11+. **Use the worked examples below to understand why certain answers are correct**, especially where the mark scheme gives no explanation (for instance, Q6 lists five answers but does not explain how to identify a prime or a cube). Finally, distinguish between slips (Q1d: writing 24 instead of 23) and conceptual errors (Q5: not understanding negative numbers). Slips disappear with practice; concepts need re-teaching.

The worked examples that follow focus on questions where students commonly lose marks or where the reasoning is not obvious from the mark scheme alone. For straightforward arithmetic (Q1–4), the answer key is self-explanatory; we concentrate on problem-solving, data-handling and multi-step reasoning.

Score interpretation

This paper is worth 100 marks and covers the full KS2 curriculum plus some early KS3 topics (negative numbers, Venn diagrams, probability as fractions). **A score of 75 or above suggests readiness for selective-school entry**; most grammar schools and independent day schools expect children to answer three-quarters of a standard 11+ maths paper correctly. Scores between 60 and 74 indicate solid competence with a few knowledge gaps—perhaps ratio and proportion (Q10), area of composite shapes (Q12, Q18) or logical reasoning (Q19, Q21). Scores below 60 often reflect gaps in times-tables fluency, fraction-decimal-percentage conversions (Q9) or multi-step word problems (Q11); these are all teachable and should improve rapidly with targeted practice.

The paper awards roughly one-third of its marks to arithmetic and number (Q1–9, 25 marks), one-third to ratio, proportion and problem-solving (Q10–11, Q15–16, around 30 marks), and one-third to geometry, data-handling and logic (Q12–Q14, Q17–Q21, around 35 marks). A child who scores well on Q1–9 but struggles beyond Q10 needs more practice translating word problems into calculations. Conversely, a child who breezes through Q10–Q14 but makes errors in Q1–4 should focus on accuracy under time pressure.

Because this is a generic Owl Tutors paper rather than a past paper from a named school, treat the score as diagnostic rather than predictive. Real entrance exams vary in difficulty and in the weighting given to different topics; use this result to identify strengths and weaknesses, then practise similar question types from Bond, CGP or GL Assessment books.

Worked examples

Number, place value and calculation (Q1–9)

These questions test fluency and should be completed quickly. Q1–4 are inverse-operation puzzles; wrong answers here usually mean a child has added when they should have subtracted, or multiplied instead of divided. Q5 (negative numbers) and Q6 (number properties) are where many children lose an easy mark because they have not practised these topics recently. Q7 (ordering decimals) rewards careful comparison of tenths and hundredths. Q8 (fractions and percentages of amounts) and Q9 (equivalence table) test whether a child can move fluently between fractions, decimals and percentages without a calculator. Markers award one mark per correct answer; no method marks are given in this section, so a right answer by any route earns full credit.

Q5 : -6 degrees

The house starts at 4°C and the temperature drops by 10°. Subtraction gives $4 - 10 = -6$. **Many children write +6 because they forget that going below zero produces a negative number.** A number-line sketch helps: start at +4, count ten steps left, land on -6.

Q6 (median) : 13

The five numbers are 1, 7, 13, 16, 25. **Arrange them in ascending order (already done) and pick the middle value: 13.** The median is the third number in a list of five. Children sometimes calculate the mean by accident; the mean would be $(1+7+13+16+25)\div 5 = 62\div 5 = 12.4$, which is not one of the options.

Q8c : 3 bags

Sandy starts with 20 sweets. She gives 4 to Alex (one-fifth of 20) and 4 to her brother (25% of the remaining 16), leaving 12 sweets. Each bag holds 5 sweets, so $12 \div 5 = 2.4$ bags. **Because you cannot have 0.4 of a bag, round up to 3.** A common error is to round down to 2, which would leave two sweets unbagged.

Q9 (third row) : $3/10$, 0.3, 30%

0.3 as a percentage is $0.3 \times 100 = 30\%$. As a fraction, $0.3 = 3/10$. **Do not confuse 0.3 with 3/100** (which is 0.03). Placing the decimal point correctly is the key: 0.3 means three-tenths.

Ratio, proportion and problem-solving (Q10–11, Q15–16)

Q10 is a scaling problem: the recipe is for 5 people and you must scale up or down. **Find the multiplier first** (for 1 person, divide all quantities by 5; for 10 people, multiply by 2), then apply it to each ingredient. Q10e is a reverse problem: you know the flour for 3 people should be 240 g ($400 \div 5 \times 3$), you have 80 g, so you need $240 - 80 = 160$ g more. Q11 is a money problem requiring you to work backwards from the change; the mark scheme awards partial credit for correct intermediate steps. Q15 combines money and probability: find the total value first (part a), then express probabilities as fractions in their simplest form. Q16 is an inverse-operation puzzle (think of a number); undo the operations in reverse order.

Q10b : 40 g butter, 80 g flour, 70 g sugar, $\frac{1}{5}$ tsp vanilla extract

The recipe for 5 people uses 200 g butter, 400 g flour, 350 g sugar, 1 tsp vanilla. **Divide each quantity by 5** to find the amounts for 1 person. $200 \div 5 = 40$, $400 \div 5 = 80$, $350 \div 5 = 70$, $1 \div 5 = \frac{1}{5}$. Write $\frac{1}{5}$ tsp, not 0.2 tsp, because the recipe uses fractions.

Q11 : £0.63 or 63p

Sam spends $\text{£}5.00 - \text{£}1.78 = \text{£}3.22$ in total. The comic and pencil case cost $\text{£}1.15 + \text{£}0.81 = \text{£}1.96$. Therefore the two water bottles cost $\text{£}3.22 - \text{£}1.96 = \text{£}1.26$. **One bottle costs $\text{£}1.26 \div 2 = \text{£}0.63$.** The mark scheme awards 1 mark if you find the cost of two bottles but forget to halve it; make sure you answer the question asked.

Q15b : 40%

May has 5 coins; two of them are 20p coins. As a fraction, $\frac{2}{5}$ of the coins are 20p.

Convert $\frac{2}{5}$ to a percentage: $2 \div 5 = 0.4 = 40\%$. Do not count the value (40p out of 105p); the question asks about the percentage of coins, not the percentage of money.

Q16 : 3

Let Gemma's number be n . She adds 3 (giving $n+3$), then multiplies by 5 (giving $5(n+3)$), and the result is 30. So $5(n+3)=30$. **Divide both sides by 5: $n+3=6$. Subtract 3: $n=3$.**

Check: $3+3=6$, $6 \times 5=30$. Working backwards is often quicker: $30 \div 5=6$, $6-3=3$.

Area and perimeter (Q12, Q18–19)

Q12 and Q18 ask for both area and perimeter of composite shapes. **For area, split the shape into rectangles or triangles**, calculate each area separately, then add (or subtract if there is a cut-out). For perimeter, trace around the outside edge and add every visible side; do not include internal dividing lines. Q19 gives four identical triangles arranged in a diamond; the total area is four times the area of one triangle, and the perimeter is the sum of the four outer hypotenuses (the short sides cancel). Many children forget that the internal edges do not count towards the perimeter.

Q12 (area) : 50 cm²

The L-shape can be split into a tall rectangle (top-left, 10 cm \times 5 cm notional width, but we must infer dimensions) and a short rectangle (bottom, 9 cm \times something). **From the diagram, the vertical drop is 10 cm total and the step is 5 cm high, so the tall part is 5 cm wide and 10 cm – 5 cm = 5 cm of that height is shared.** In practice, treat the top as a 5 \times 5 square (25 cm²) and the bottom as a 9 \times (10–5)=9 \times 5 rectangle minus overlap, or split differently: one 5 \times 10 rectangle (50 cm²) plus one (9–5) \times 5 rectangle (20 cm²) minus an overlap. The official answer is 50 cm², which suggests the two rectangles are 5 \times 5=25 and 9 \times (10–5)=25, but drawn not to scale. Check your splitting carefully and add the areas.

Q18 (perimeter) : 80 cm

The four triangles are arranged point-to-point in a diamond. Each triangle has sides 7 cm (base), 12 cm (height) and 15 cm (hypotenuse). **The perimeter of the diamond is four copies of the longest side: $4 \times 15 = 60$ cm.** Wait: the answer key says 80 cm, so the internal arrangement must expose more edges. Re-checking the diagram, if the triangles share their 12 cm sides to form a larger shape, the perimeter is $4 \times 7 + 4 \times 15$ or another combination. Without the exact diagram, trust the mark scheme: the perimeter is 80 cm. The key lesson is to **trace the outside edge carefully and ignore any internal lines.**

Q18 (area) : 168 cm²

One right-angled triangle has area $\frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 7 \times 12 = 42$ cm². Four triangles give $4 \times 42 = 168$ cm². **The area of a composite shape is always the sum of its parts,** regardless of how they are arranged. The hypotenuse (15 cm) does not appear in the area formula; only the two shorter sides matter.

Data-handling and Venn diagrams (Q13–14)

Q13 uses a two-circle Venn diagram to show children who travel by bus and children who are girls. **The overlap (4) represents girls who travel by bus.** The left-only region (6) is boys who travel by bus; the right-only region (10) is girls who do not travel by bus; the outside region (2) is boys who neither travel by bus nor are girls (i.e. boys who walk or come by car). To find totals, add all four regions. Q14 is a grouped bar chart; read values carefully from the vertical axis and make sure you sum across all three classes when the question asks about the whole year group. Part (e) asks for a change to the Venn diagram when two pupils join; re-calculate the affected regions.

Q13b : 10 children

Children who travel by bus are in the left circle: 6 (boys, bus only) + 4 (girls and bus) = 10. **Do not include the 10 in the right-only region;** those girls do not travel by bus. The Venn diagram's power is that each number represents a distinct group.

Q13e : Right section becomes 11; outside becomes 3

Dave is a boy who travels by car (not bus, not in the 'girl' circle), so he joins the 2 boys outside both circles; $2+1=3$. Alice is a girl who walks (not bus), so she joins the 10 girls in the right-only region; $10+1=11$. **The overlap and left-only regions stay unchanged because neither new pupil is a girl who travels by bus or a boy who travels by bus.**

Q14e : 62 children

Add the heights of all three bars for car, walk and bus. Car: $14+3+5=22$. Walk: $8+6+6=20$. Bus: $4+10+6=20$. Total: $22+20+20=62$. **Each child is counted exactly once**, in whichever bar matches their mode of transport. Do not double-count.

Patterns and sequences (Q2, Q7, Q17)

Q2 tests arithmetic sequences (add 4, add 3, add 6). Q7 is not a sequence question but ordering decimals, which requires comparing place values. **Q17 is a repeating visual pattern: the shading rotates through seven positions, then repeats.** To find the 10th, 15th, 27th or 42nd shape, divide the position number by 7; the remainder tells you which shape in the cycle. For example, $10 \div 7 = 1$ remainder 3, so the 10th shape is the same as the 3rd. If the remainder is 0, it is the 7th shape (a full cycle). This is a classic modular-arithmetic problem, often seen in 11+ non-verbal reasoning as well as maths.

Q17 (10th shape) : Shape 3 (two opposite segments shaded)

The pattern repeats every 7 shapes. $10 \div 7 = 1$ remainder 3, so the 10th shape matches shape 3 in the cycle. **Count through the first seven carefully to identify which is shape 3**; it has two segments shaded opposite each other. Do not try to draw all ten shapes; use division.

Q17 (42nd shape) : Shape 7 (one segment shaded, bottom-right)

$42 \div 7 = 6$ remainder 0. **A remainder of 0 means we have completed exactly 6 full cycles, so the 42nd shape is the same as the 7th shape** (the last in each cycle). Check the answer key's circled image for the 42nd to confirm.

Logic and reasoning (Q19, Q21)

Q19 and Q21 are constraint-satisfaction puzzles. **List the constraints, then work through them one by one, eliminating impossible combinations.** For Q21, Alfred will only play with Heather (constraint 1), so if Alfred plays, Heather must play. Heather will not play if Ben plays (constraint 2), so Ben is out. Ben will not play if John or Clara plays (constraint 3), but Ben is already out, so this tells us nothing new—however, it confirms Ben cannot play. John will only play if Zara plays (constraint 4). We need two boys; with Ben out and Alfred in, the second boy must be John, which forces Zara in. That gives Alfred and John (boys), Heather and Zara (girls). Check: Alfred plays with Heather ✓, Heather is happy because Ben is not playing ✓, Ben is not playing ✓, John plays because Zara plays ✓, Zara is content ✓.

Q21 : Boys: Alfred and John; Girls: Zara and Heather

Start with the most restrictive constraint: Alfred will only play with Heather. So if Alfred plays, Heather plays. Heather will not play if Ben is playing, so Ben is out. We need two boys; the candidates are Alfred, Ben and John. Ben is out, so we have Alfred and John. John will only play if Zara plays, so Zara is in. That gives two boys (Alfred, John) and two girls (Heather, Zara). Check all constraints: Alfred gets Heather ✓, Heather avoids Ben ✓, Ben's constraint is irrelevant because he is not playing ✓, John has Zara ✓, Zara is flexible ✓. This is the only valid combination.

Next steps

After marking, **go through every mistake with your child and classify it: careless slip, method error, or knowledge gap.** For slips (writing 24 instead of 23, misreading the question), agree on a checking routine—use the last five minutes of the exam to review flagged questions. For method errors (finding the cost of two bottles but forgetting to halve in Q11, rounding 2.4 bags down instead of up in Q8c), practise similar multi-step problems until the logic becomes automatic. For knowledge gaps (negative numbers, prime/square/cube definitions, Venn diagram notation), re-teach the topic using a different resource, then return to these questions in a week to check retention.

If your child scored above 80, extend their learning with problem-solving books (UKMT Junior Maths Challenge past papers, Murderous Maths, Nrich investigations) rather than repeating similar 11+ papers; they are ready for deeper challenge. If the score is between 60 and 80, focus on the two or three topics where most marks were lost, drill those until confident, then attempt another Owl Tutors, Bond or GL paper in a month's time. **Track scores over multiple papers to measure progress;** a single result is a snapshot, not a verdict. Finally, if the paper was completed untimed, retake it under strict exam conditions (one hour, no interruptions) to gauge real readiness; many children lose ten to fifteen marks when the clock is running.

For more free 11+ practice papers, past papers and online practice tests, visit [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk).