

## 11+ PRACTICE PACK

# CSSE Familiarisation

## 11+ Maths Complete Practice Pack

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#### **01** Question Booklet

CSSE 11+ Maths. Work through this paper first.

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

#### **02** Answers

CSSE 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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**MATHEMATICS FAMILIARISATION PRACTICE  
PAPER FOR FIRST USE FOR 2015 ENTRY**

Name: \_\_\_\_\_

Candidate Number: \_\_\_\_\_

Primary School: \_\_\_\_\_

Boy or Girl: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Today's Date: \_\_\_\_\_

Test Taken At: \_\_\_\_\_

**READ THE FOLLOWING CAREFULLY:**

1. **Do not open this booklet until you are told to do so.**
2. You may work the questions out in your head, or by writing on the white area around the question.
3. **Work as quickly and as carefully as you can.**
4. Make any alterations to your answers **clearly**. You will not lose marks for crossing out.
5. You will have **60 minutes** to do the test. If you find you cannot do a question, **do not waste time on it but go on to the next one.**
6. **Once the test has begun, you should not ask about questions in the test.**
7. **The use of electronic calculators of any description (including calculator watches) is NOT permitted.**

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**NOT TO BE  
FILLED IN BY PUPIL**

PAGE	SCORE	
	R	W
1 (8)		
2 (6)		
3 (3)		
4 (3)		
5 (5)		
6 (3)		
7 (5)		
8 (5)		
9 (4)		
10 (5)		
11 (4)		
12 (3)		
13 (4)		
14 (2)		
TOTAL (60)		
INITIALS OF MARKER(S)		

**You have sixty minutes to complete this paper.  
Do your working out in the spaces on the paper.**

Question (and working space)	ANSWER	Please do not write in this space
<b>1</b> (a) Calculate: $793 + 1321$  <hr/>		
(b) Add $16.03$ and $9.48$  <hr/>		
<b>2</b> (a) Calculate: $1572 - 829$  <hr/>		
(b) Find the difference between $8.38$ and $6.94$  <hr/>		
<b>3</b> (a) Calculate: $37 \times 140$  <hr/>		
(b) What is the result of $11$ multiplied by $4.02$ ?  <hr/>		
<b>4</b> (a) Calculate: $195 \div 15$  <hr/>		
(b) Divide $14$ by $0.2$  <hr/>		

R  
W  
(8)

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

**5** Each of the following calculations is incomplete. This is indicated by a question mark. For each part of the question, state the value of the missing digit.

(a)  $56 + 975 = 10?1$

? =

(b)  $0.35 + 1.?7 = 2.22$

? =

(c)  $9?5 - 128 = 777$

? =

(d)  $? - 7 = -2$

? =

(e)  $13 \times 1?1 = 1703$

? =

(f)  $1.1 \div 2 = 0.?5$

? =

(6)

R  
W

GO TO NEXT PAGE

Question (and working space)

Please do not write in this space

- 6** 25 children were asked how many cousins they had. The results are shown in the bar chart.




ANSWER

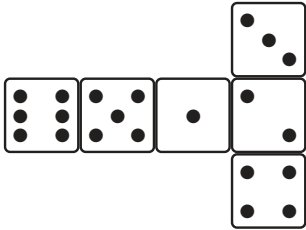
- (a) How many children had no cousins?
- (b) How many children had more than two cousins?
- (c) How many cousins did all the children have in total?

R  
W  
(3)

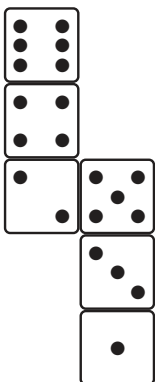
GO TO NEXT PAGE

**7** This question includes diagrams showing the net of three different unfolded dice. In each part of the question, based on the net illustrated, indicate how many dots would appear on the face *opposite* the 5 (  ).

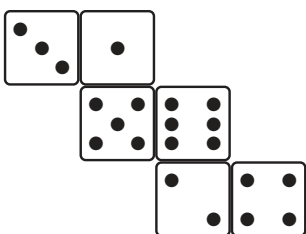
(a)



(b)



(c)



R  
W  
(3)

Question (and working space)

ANSWER

Please do not write in this space

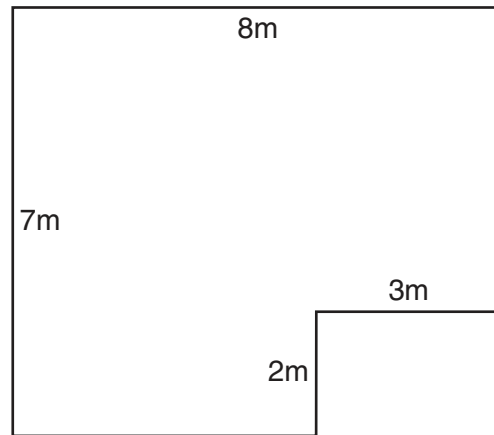
**8** In each of the following calculations there is an error, which can be corrected by changing one digit **to the number 7**. In each case identify that digit.

(a)  $98 - 65 = 32$   
Which digit needs to be replaced with a **7**?

(b)  $39 + 48 + 50 = 167$   
Which digit needs to be replaced with a **7**?

(c)  $734 + (8 \times 26) = 950$   
Which digit needs to be replaced with a **7**?

**9** This is a sketch drawing of Kirin's office, which needs new carpet.



(a) What is the total area of the floor of the office?

sq m

(b) How many carpet tiles, each 50cm x 50cm, would Kirin need to cover the floor?

(5)

R  
W

GO TO NEXT PAGE

**10** In this question letters of the alphabet are assigned number values:  
 A = 1, B = 2, C = 3, D = 4, ....

The **sum total** of a word is created by **adding** the value of the letters.

For example: the sum total of 'HAD' = 8 + 1 + 4 = 13

(a) What is the sum total of the word 'TANK'?

(b) List the following words in order of their sum total, starting with the lowest:

DOG      CATS      FISH      BIRD

Lowest

.....

.....

.....

.....

Highest

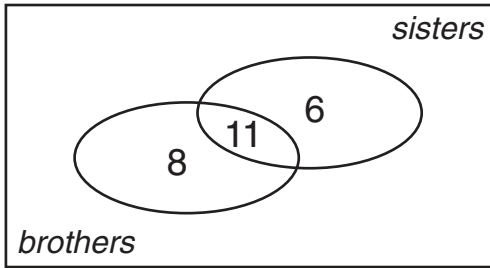
(c) Which single letter has the same value as the result of dividing the sum total for 'JET' by the sum total of 'BAD'?

JET ÷ BAD = .....

Question (and working space)

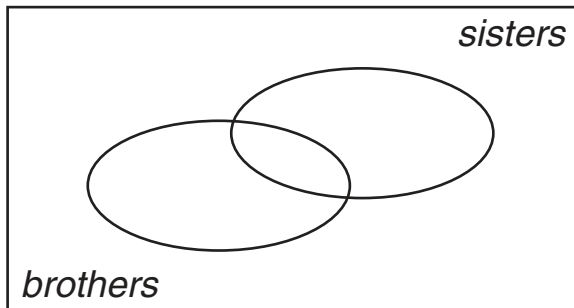
Please do not write in this space

- 11** A class of thirty pupils were each asked about whether they had any brothers or any sisters.  
The results are shown in the Venn diagram.



ANSWER	

- (a) How many pupils had *only* sisters?
- (b) How many pupils had a brother?
- (c) How many pupils had no brothers or sisters?
- (d) Another class of thirty pupils were asked the same questions. 15 had a brother, 12 had a sister and 8 had no brothers or sisters. Complete the Venn diagram below to show this information



Question (and working space)

ANSWER

Please do not write in this space

**12** Refer to the following school canteen price list for this question:

Pasta Salad .....95p  
Baguette .....85p  
Apple.....40p  
Fruit Crumble.....£1.15  
Curry and Rice.....£2.30

Mr. Sanders wants to buy a class set of 25 packed lunches – each with a pasta salad, a baguette and an apple.  
How much will he have to pay in total?

**13** (a) How many grams are there in 2.5kg?

(b) Andy has 5m 35cm of tape. He uses 243cm for wrapping parcels. How many cm of tape does he have left over?

**14** Sam is completing a table of values for the formula  $2(n+1)$ . He has completed the first row of the table.

$n$	$2(n+1)$
5	12
19	
	80

Complete the table with the two missing values.

R  
W  
(5)

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

**15** The grid below is a magic square. Every row, column and diagonal must add to 1.5.

What value must be placed in the shaded box?

		0.2
	0.5	
	0.1	

**16** This question concerns the number sequence that is formed starting at '0', then adding 1, subtracting 2, adding 3, subtracting 4, ....

The first four terms of the sequence are: **0, 1, -1, 2, ....**

(a) What is the sixth (6th) term in the sequence?

(b) What is the eleventh (11th) term in the sequence?

(c) What is the hundredth (100th) term in the sequence?

(4)

GO TO NEXT PAGE

**17** This question involves five number cards:



(a) Use all five number cards to complete the following calculation.

$$\square \square \square - \square \square = 654$$

(b) Use only three of the number cards to complete the following calculation.

$$\square + \square \times \square = 33$$

ANSWER
(5)

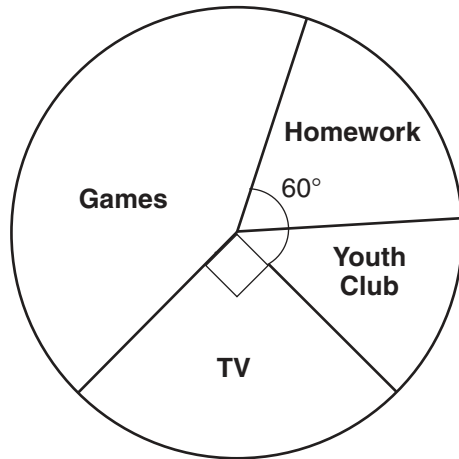
**18** (a) Which whole number less than twenty is *both* an even number *and* a prime number?

(b) 4 is a square number and also an even number.  
How many other whole numbers less than fifty are even square numbers?

(c) Which three prime numbers multiply together to make 154?

R  
W

**19** The pie chart shows how 90 Year 7 pupils spent their time last night.



ANSWER

(a) How many pupils were doing homework?

(b) 10 pupils went to the youth club.  
What is the size of the angle for that sector of the chart?

**20** Four boys played in a cricket match. Their batting scores were 26, 13, 4 and 19.

(a) What was the average (mean) score?

(b) Another boy, Sam, batted next. The average (mean) score for the five boys is now 16. What was Sam's score?



Question (and working space)

ANSWER

Please do not write in this space

**22** Four sided shapes are known as quadrilaterals. There are several types of quadrilateral including: square, oblong, parallelogram, kite, rhombus and trapezium. Thinking about these different types, decide whether the following statements are true for **all**, **some** or **no** quadrilaterals.

(a) "All four sides are the same length."  
Is this statement true for **all**, **some** or **no** quadrilaterals?

(b) "All four angles are acute."  
Is this statement true for **all**, **some** or **no** quadrilaterals?

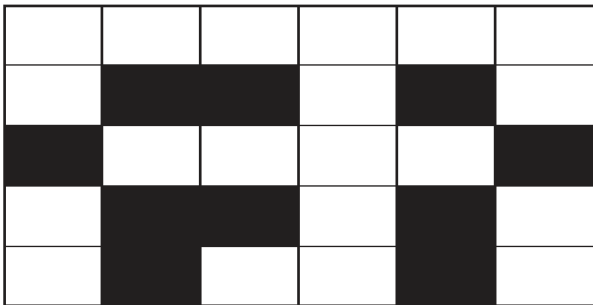
(c) "Two of the sides are parallel."  
Is this statement true for **all**, **some** or **no** quadrilaterals?

(d) "The four angles add together to make  $360^\circ$ ."  
Is this statement true for **all**, **some** or **no** quadrilaterals?

R  
W  
(4)

GO TO NEXT PAGE

23 Finish shading the diagram, colouring *only two* more squares, so that the image has one **vertical** line of symmetry.



ANSWER

24 In the grid below each number in the middle of a row or column is the average (mean) of the numbers on either side of it.

What value must be placed in the shaded box?

0.2		1.2
1.4		2.2

**END OF TEST** (You should have completed 24 questions.)



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# Paper Notes: 11+ Maths Question Booklet (Familiarisation)

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 a **CSSE 11+ Maths familiarisation practice paper**, designed to help Year 6 pupils preparing for **11+ entrance examinations** to selective grammar schools. Published by the **Consortium of Selective Schools in Essex**, it mirrors the format and difficulty of the actual entrance test, giving students authentic exam experience before sitting the real assessment.

The paper contains **24 questions** worth **60 marks in total**, covering a wide range of mathematical topics from basic arithmetic through to problem solving, algebra, geometry, and statistics. Questions increase in complexity as the paper progresses, testing both computational fluency and reasoning skills. The mix of calculation, application, and multi-step problems reflects the breadth expected at 11+ level.

Candidates have **60 minutes** to complete the paper without a calculator. The format includes short-answer questions requiring students to show working in the spaces provided. This practice paper is suitable for students in the final stages of Year 6 preparing for grammar school entry, particularly those applying to CSSE schools, and provides an excellent benchmark for readiness.

## How this paper is organised

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The paper comprises **24 questions** distributed across **14 numbered sections** on pages 2 to 14, with marks per page listed on the front cover. Marks range from 2 to 8 per section, totalling **60 marks**. Early questions (1 to 4) focus on straightforward calculations (addition, subtraction, multiplication, division), each broken into parts (a) and (b), building confidence and securing quick marks.

The middle section (questions 5 to 14) introduces more demanding content: missing digit problems, bar chart interpretation, dice net visualisation, area and unit conversion, word puzzles using letter values, and Venn diagram completion. These questions test application and reasoning, with marks reflecting increased difficulty (typically 3 to 5 marks per section).

Later questions (15 to 24) present multi-step challenges including magic squares, sequences, prime factorisation, product values, quadrilateral properties, and mean calculations with unknowns. Each question has a dedicated answer box on the right-

hand side. The front cover includes a marking grid for examiners to record scores per page, reinforcing the authentic exam feel.

## Topics covered

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- Number operations: addition, subtraction, multiplication, and division of whole numbers and decimals, including problems such as  $37 \times 140$  and  $14 \div 0.2$
- Missing digit problems: identifying unknown digits in incomplete calculations involving addition, subtraction, multiplication, division, and negative numbers
- Data handling: interpreting bar charts to extract frequencies, calculate totals, and answer conditional questions about cousin numbers
- Spatial reasoning: visualising dice nets to determine opposite faces, requiring mental rotation and three-dimensional understanding
- Problem solving with area and unit conversion: calculating composite areas (L-shaped office floor) and converting between metres, centimetres, and tile counts
- Algebraic thinking: completing tables of values for the formula  $2(n+1)$ , working backwards from outputs to find missing inputs
- Letter-value puzzles: calculating sum totals and product values of words by assigning numerical values to alphabet letters, then ordering and solving equations
- Venn diagram interpretation and construction: reading overlapping sets for brothers and sisters, then creating a new diagram from given data
- Prime numbers, square numbers, and factorisation: identifying even primes, counting even squares below 50, and finding prime factors of 154
- Sequences and patterns: generating terms of an alternating add/subtract sequence and predicting the 6th, 11th, and 100th terms
- Magic squares with decimals: using row, column, and diagonal totals to deduce missing values in a  $3 \times 3$  grid summing to 1.5
- Geometry of quadrilaterals: determining which properties (equal sides, parallel sides, acute angles, angle sum  $360^\circ$ ) hold for all, some, or no quadrilaterals
- Symmetry: completing a partially shaded grid so that the image has exactly one vertical line of symmetry
- Mean (average) calculations: finding the mean of four cricket scores, then using the mean of five scores to determine an unknown fifth value

## How to use this paper for revision

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- Practise mental arithmetic daily, particularly multiplication tables up to  $12 \times 12$  and division facts, so you can tackle the opening calculation questions confidently without wasting time.
- For missing digit problems, work systematically: write out the expected answer range, then test each possibility in the given position until the calculation balances correctly.
- When interpreting bar charts or Venn diagrams, read every label carefully and extract data step by step; sketch your working to avoid miscounting overlapping categories.
- Visualise dice nets by imagining folding the shape: identify which faces will meet at edges, and remember that opposite faces never share an edge in the unfolded net.
- In area problems, break composite shapes into rectangles, calculate each area separately, then combine; always check units (metres vs centimetres) before multiplying or adding.
- For letter-value puzzles, write out the alphabet with numbers 1 to 26 beside each letter; calculate systematically, checking your arithmetic as sums and products grow large.
- Revise properties of number types (primes, squares, factors) using flashcards or lists; know the first ten primes and squares by heart to answer classification questions quickly.

## Common mistakes to avoid

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- Misaligning columns in decimal addition or subtraction (e.g. adding 16.03 and 9.48 incorrectly by treating 03 as 3), leading to answers like 25.51 instead of 25.51.
- Forgetting to convert units before calculating: for instance, calculating carpet tiles without converting 8 m and 3 m into centimetres, or confusing 5 m 35 cm with 5.35 m.
- Overlooking negative numbers in equations such as  $? - 7 = -2$ , assuming the answer must be positive and writing 5 instead of 5.
- In Venn diagram questions, double-counting the intersection: adding all three regions without realising that pupils in the overlap are already included in both circles.
- Misinterpreting 'more than two cousins' as 'two or more cousins', including the bar at 2 instead of only those at 3 and 4, inflating the count by several children.
- In dice net problems, confusing adjacent faces with opposite faces, or failing to account for how the net folds, leading to incorrect dot counts on the far side.

## Exam technique

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Begin by scanning the entire paper to identify quick-win questions: the opening calculations (questions 1 to 4) should take no more than 8 to 10 minutes combined, securing early marks and building confidence. Use rough working space around each question generously; examiners award marks for clear method even if the final answer is incorrect, so never skip writing out your steps.

Allocate time proportionally to marks: a 2-mark symmetry question should take roughly 2 minutes, while a 5-mark problem involving multiple steps (such as the office carpet tiles) deserves 5 to 6 minutes. If you become stuck on a question after two minutes, move on and return later; the paper structure rewards breadth over persistence on a single difficult item.

In the final 10 minutes, prioritise checking high-value questions (those worth 4 or 5 marks) and any answers that feel uncertain. Revisit calculations involving decimals and unit conversions, as these are common error sources. If you have time, verify that your answers to ordering or listing questions (such as the word sequences) are written in the correct direction, as reversing lowest-to-highest loses all marks despite correct calculations.

## What to revise alongside this paper

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Strengthen your understanding of **factors, multiples, and prime factorisation** by working through factor trees and listing all factors of numbers up to 200; this underpins question 18c and similar problem-solving tasks. Revisit **properties of 2D shapes**, particularly the defining features of parallelograms, rhombuses, kites, and trapeziums, so you can confidently answer classification questions about quadrilaterals.

Practise interpreting and constructing **pie charts, bar charts, and two-way tables** to build fluency in data handling; try drawing your own Venn diagrams for overlapping categories (pets, sports, hobbies) to reinforce the logic of intersections. Work on **multi-step word problems** involving money, measures, and rates (such as cost per item or tiles per square metre) to mirror the real-world contexts in questions 9 and 12.

For students aiming at top marks, explore **sequences beyond linear patterns**, including Fibonacci-style rules and quadratic growth, and attempt more advanced algebra such as solving equations with unknowns on both sides. Extend magic square puzzles to 4×4 grids or those using fractions and negative numbers to deepen pattern recognition and logical deduction skills.

## Key terms

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**Mean (average), Venn diagram, Net (unfolded 3D shape), Composite area, Prime number, Square number, Factor, Sequence, Quadrilateral, Parallel, Symmetry, Acute angle, Magic square, Product, Unit conversion**

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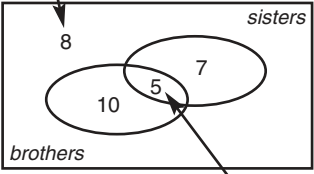
**MATHEMATICS FAMILIARISATION PRACTICE PAPER FOR FIRST USE FOR 2015 ENTRY – ANSWERS**

**1 mark for each correct answer. Total 60 marks.**

	ANSWER		ANSWER
1a	<b>2114</b>	5a	<b>? = 3</b>
1b	<b>25.51</b>	5b	<b>? = 8</b>
2a	<b>743</b>	5c	<b>? = 0</b>
2b	<b>1.44</b>	5d	<b>? = 5</b>
3a	<b>5180</b>	5e	<b>? = 3</b>
3b	<b>44.22</b>	5f	<b>? = 5</b>
4a	<b>13</b>		
4b	<b>70</b>		
			ANSWER
		6a	<b>3</b>
		6b	<b>8</b>
		6c	<b>49</b>
		7a	<b>2</b>
		7b	<b>1</b>
		7c	<b>4</b>

	ANSWER
8a	<b>8</b>
8b	<b>4</b>
8c	<b>6</b>
9a	<b>50 sq m</b>
9b	<b>200</b>

	ANSWER
10a	<b>46</b>
10b	Lowest <b>DOG</b> ..... <b>BIRD</b> ..... <b>FISH</b> ..... <b>CATS</b> ..... Highest
10c	<b>E</b>

	ANSWER
11a	<b>6</b>
11b	<b>19</b>
11c	<b>5</b>
11d	1 mark 

	ANSWER								
12	<b>£55</b>								
13a	<b>2500</b>								
13b	<b>292</b>								
14	<table border="1"> <thead> <tr> <th><math>n</math></th> <th><math>2(n+1)</math></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>12</td> </tr> <tr> <td>19</td> <td><b>40</b></td> </tr> <tr> <td><b>39</b></td> <td>80</td> </tr> </tbody> </table>	$n$	$2(n+1)$	5	12	19	<b>40</b>	<b>39</b>	80
$n$	$2(n+1)$								
5	12								
19	<b>40</b>								
<b>39</b>	80								

	ANSWER
15	<b>0.3</b>
16a	<b>3</b>
16b	<b>-5</b>
16c	<b>50</b>

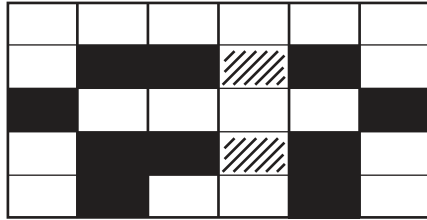
17a	<b>7 4 5 - 9 1</b>
17b	$\boxed{5} + \boxed{4} \times \boxed{7}$ <p>or</p> $\boxed{5} + \boxed{7} \times \boxed{4}$
	ANSWER
18a	<b>2</b>
18b	<b>2</b>
18c	<b>2, 7, 11</b>

	ANSWER
19a	<b>15</b>
19b	<b>40°</b>
20a	<b>15.5</b>
20b	<b>18</b>

	ANSWER
21a	<b>2375</b>
21b	<p>Lowest</p> <p><b>DOG</b></p> <p>.....</p> <p><b>CATS</b></p> <p>.....</p> <p><b>BIRD</b></p> <p>.....</p> <p><b>FISH</b></p> <p>.....</p> <p>Highest</p>
21c	<b>BEG</b>

	ANSWER
22a	Some
22b	No
22c	Some
22d	All

23



	ANSWER
24	1.25

# Answer-Key Notes: 11+ Maths Answers

## (Familiarisation)

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

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This answer key lists the correct answers to all 60 questions on the familiarisation paper. Each question is worth one mark. When marking, check whether a mistake follows a pattern (for example, several decimal errors in a row) or is a one-off slip. A pattern suggests the topic needs revision. A single error often means the child rushed or misread the question. Use the worked examples below when an answer surprises you, either because your child got it wrong or because the correct answer is not obvious. The reasoning will clarify **why** a particular answer is right and help you decide whether to revisit similar questions or move on.

### Score interpretation

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This paper covers the breadth of Year 6 maths in 60 single-mark questions: number work (including place value, decimals and negative numbers), basic algebra, geometry, data handling, word problems and logic puzzles. A score above 50 shows strong readiness for selective-school entrance papers. Scores between 40 and 50 indicate solid understanding with a few gaps to plug. Below 40 suggests that either time pressure was a problem or that several core topics need targeted practice.

Look at which sections lost marks. If most errors cluster in one area (for example, questions 5a–f on missing digits, or the Venn-diagram questions), that topic deserves focused revision. If mistakes are scattered, the issue is more likely exam technique: reading questions carefully, checking arithmetic and managing time. Either way, **the pattern of errors matters more than the raw score** on a familiarisation paper.

Because every question carries equal weight, a handful of careless slips can pull the total down quickly. If your child scored well on multi-step problems but lost marks on simple arithmetic, emphasise accuracy drills. Conversely, a child who completes straightforward calculations correctly but struggles with logic puzzles or worded questions should practise interpreting unfamiliar problem types under timed conditions.

## Worked examples

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### Basic arithmetic, Q1–4

These eight questions test fluency with the four operations on whole numbers and decimals. Marks are lost when children misalign decimal points (Q1b, 2b, 3b) or make place-value errors in subtraction borrowing (Q2a). The division questions (Q4a, 4b) catch students who forget that dividing by 0.2 is the same as multiplying by 5. Work neatly in columns and double-check any answer that looks unexpectedly large or small.

**Q3b** :  $44.22$

$11 \times 4.02$ : multiply 11 by 4 to get 44, then 11 by 0.02 to get 0.22, and add the parts. Many children write 44.2 by forgetting the trailing zero in the hundredths place. Always count decimal places: two in the question means two in the answer.

**Q4b** : 70

Dividing by 0.2 is equivalent to multiplying by 5 (because  $1 \div 0.2 = 5$ ). So  $14 \div 0.2 = 14 \times 5 = 70$ . A common mistake is to treat it as  $14 \div 2 = 7$ , forgetting the decimal shift.

### Missing-digit problems, Q5a–f

Each part asks for a single missing digit in an equation. Success depends on working backwards from the answer or testing digits systematically. Errors happen when children guess rather than calculate, or when they confuse which column (units, tens, tenths) the question mark occupies. Write out the full number with the question mark in place, then solve as you would any equation.

**Q5c** :  $? = 0$

$9?5 - 128 = 777$ . Start with  $777 + 128 = 905$ , so the missing digit in the tens column must be 0. Children who write 9 have misread which digit is missing.

**Q5d** :  $? = 5$

$? - 7 = -2$ . Add 7 to both sides:  $? = 5$ . This tests understanding of negative numbers; a common mistake is to answer 9 by adding the magnitudes without considering the sign.

**Q5f** : ? = 5

$1.1 \div 2 = 0.55$ . Calculate  $1.1 \div 2 = 0.55$ , so the missing digit in the tenths place is 5. Errors arise if the child writes 0.5 and assumes the question mark is 0.

### Bar chart and Venn diagrams, Q6, 11

Both questions require careful reading of a diagram and arithmetic with the frequencies. For the bar chart (Q6), check the scale on the vertical axis; each grid line represents a certain number of children. For the Venn diagram (Q11), remember that the overlapping region counts towards *both* sets. Marks are lost when students miscount grid squares or forget to include (or exclude) the intersection when totalling.

**Q6c** : 49

Multiply each number of cousins by how many children had that many, then sum:  $(3 \times 0) + (8 \times 1) + (6 \times 2) + (4 \times 3) + (4 \times 4) = 0 + 8 + 12 + 12 + 16 = 49$ . A common error is to add  $3 + 8 + 6 + 4 + 4 = 25$  (the number of children) instead of weighting by cousins.

**Q11b** : 19

The number who had a brother is everyone in the 'brothers' circle: 8 (only brothers) plus 11 (both). Total 19. Students who answer 8 have forgotten the overlap.

**Q11c** : 5

Total pupils = 30. Subtract those inside either circle:  $8 + 11 + 6 = 25$ . So  $30 - 25 = 5$  had neither brothers nor sisters. Missing this requires recognising that the space outside both circles represents 'neither'.

### Dice nets and rotation, Q7a-c

These questions test spatial reasoning. To find the face opposite 5 on an unfolded net, trace which face will fold up against it. A reliable method is to imagine folding the net or to mark which faces are adjacent in the 2D layout. Mistakes happen when children guess or only look at faces next to each other on the flat net, forgetting that 'opposite' means across the three-dimensional cube.

**Q7a** : 2

In net (a), the 5 (five dots) is in the centre of a cross shape. When folded, the face directly above it in the layout (2 dots) will be opposite. Visualise or sketch the folding: top and bottom of the vertical arm are opposite.

**Q7c** : 4

In net (c), the 5 is positioned so that when the net folds, the 4 (four dots, arranged in a square) ends up on the opposite face. This requires careful tracing; adjacent faces in the net are not opposite on the cube.

### Algebra and sequences, Q14, 16

Question 14 uses the formula  $2(n + 1)$  and asks you to complete a table. Substitute the given  $n$  into the formula or rearrange to find  $n$  when  $2(n + 1)$  is given. Question 16 defines a sequence by alternating operations (+1, -2, +3, -4, ...). Write out extra terms to spot the pattern; odd-position operations are additions, even-position operations are subtractions. Marks are lost through arithmetic slips or failing to continue the pattern far enough.

**Q14 (n = 19 row)** : 40

Substitute  $n = 19$  into  $2(n + 1)$ :  $2 \times (19 + 1) = 2 \times 20 = 40$ . Straightforward but easy to mis-add under time pressure.

**Q14 ( $2(n+1) = 80$  row)** : 39

Solve  $2(n + 1) = 80$ . Divide both sides by 2:  $n + 1 = 40$ , so  $n = 39$ . Children who answer 40 have forgotten to subtract the 1.

**Q16a** : 3

Start at 0:  $+1 \rightarrow 1$ ,  $-2 \rightarrow -1$ ,  $+3 \rightarrow 2$ ,  $-4 \rightarrow -2$ ,  $+5 \rightarrow 3$ . The sixth term is 3. List each step carefully; skipping terms leads to the wrong answer.

**Q16c** : 50

The sequence alternates sign. Odd-position terms (1st, 3rd, 5th, ...) are non-negative; even-position terms are negative. The 100th term is at an even position. By inspection or formula, the 100th term is 50. This is a harder question that rewards pattern-spotting rather than listing 100 terms.

### Word problems and logic, Q8, 10, 12, 17, 18, 21

These questions wrap arithmetic or number properties in real-world or puzzle contexts. Success requires translating words into calculations, then executing accurately. Common errors: misreading what the question asks for (Q8c asks which digit to replace, not what the corrected calculation is), forgetting to use all five cards (Q17a) or misunderstanding the

difference between sum and product (Q10, 21). Read each question twice and underline key phrases before you start.

**Q8c** : 6

$734 + (8 \times 26) = 950$  is wrong. Calculate  $8 \times 26 = 208$ ;  $734 + 208 = 942$ , not 950. We need  $950 - 734 = 216$ , so  $8 \times 26$  must become  $8 \times 27 = 216$ . Change the last digit of 26 (which is 6) to 7. The question asks **which digit** to replace, so the answer is the digit 6.

**Q10c** : E

Assign  $A=1, B=2, \dots, Z=26$ .  $JET = 10+5+20=35$ .  $BAD = 2+1+4=7$ . Divide:  $35 \div 7 = 5$ . The fifth letter is E. Students who miscalculate the sum totals will not reach 5.

**Q17a** :  $745 - 91 = 654$

Use all five cards {1,4,5,7,9} to make the largest three-digit number (9 cannot lead a two-digit number in the standard reading, but  $745 - 91$  works). Trial and improvement:  $754 - 91 = 663$  (wrong),  $745 - 91 = 654$  (correct). Other arrangements do not reach exactly 654.

**Q18c** : 2, 7, 11

Factorise 154 into primes:  $154 = 2 \times 77 = 2 \times 7 \times 11$ . All three factors are prime. List them in ascending order. A common mistake is to write 2, 7, 14, forgetting that 14 is not prime.

**Q21c** : BEG

Product values:  $B=2, A=1, G=7$ .  $BAG = 2 \times 1 \times 7 = 14$ .  $GALA = 7 \times 1 \times 12 \times 1 = 84$ . (Note: second A is 1,  $L=12$ .) We need  $84 - 14 = 70$ . Which three-letter word has product 70? Try BEG:  $2 \times 5 \times 7 = 70$ . So  $BAG + BEG = 14 + 70 = 84 = GALA$ . This is a challenging problem requiring both calculation and word-finding.

## Next steps

After marking, sit down with your child and review any question where the answer was wrong or guessed. For each mistake, ask: 'Did you misread the question, make a calculation error, or not know the method?' That diagnosis tells you what to practise next. If several errors fall in one topic (for example, decimals, negative numbers or Venn diagrams), work through similar questions in a textbook or on a dedicated worksheet until confidence builds. If mistakes are scattered, focus on exam technique:

reading carefully, showing working (even on a one-mark question, jotting a quick note helps catch errors) and checking answers when time allows.

If your child scored well, use any errors as springboards to slightly harder problems. For example, if Q16c (the 100th term) was correct, try defining a different sequence and asking for the 200th term. If the score was lower than hoped, consider retaking the paper in a few weeks after targeted revision; improvement between attempts is an excellent confidence boost and confirms that practice works. Keep familiarisation papers like this one as benchmarks rather than high-stakes tests; **their purpose is to reveal what to learn next, not to deliver a final verdict.**

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