

11+ PRACTICE PACK

CSSE 11+ Maths 2018

Complete Practice Pack

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CSSE 11+ Maths. Work through this paper first.

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

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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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CSSE

The Consortium of Selective Schools in Essex

MATHEMATICS PAPER FOR 2018 ENTRY – TEST 2

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 (5)		
2 (7)		
3 (5)		
4 (6)		
5 (4)		
6 (5)		
7 (6)		
8 (5)		
9 (4)		
10 (4)		
11 (3)		
12 (3)		
13 (3)		
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
1 (a) Calculate $435 + 87 =$		
(b) Calculate $3014 + 997 =$		
(c) Calculate $2035 - 797 =$		

2 In this question, each blank square can be completed by entering one of the single digits, from 1-9. **Each digit may be used only once.**

(a) Fill in the blank squares to show one way in which the following calculation can be completed correctly.

$$5 \times (\square \square + \square) = 195$$

(b) In **how many different ways** can the calculation be completed correctly?

$$5 \times (\square \square + \square) = 195$$

ANSWER

R
W
(5)

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

3 (a) Work out

$$27 \times 53 =$$

(b) What is the value of

$$1431 \div 9 =$$

(c) Calculate

$$(7 - 13) + (4 - 6) =$$

4 (a) Work out

$$7 \div 8 =$$

[Give your answer as a decimal.]

(b) What is the value of

$$875 \times 8 =$$

5 (a) How many grams are there in 2.32kg?

(b) Pratesh has 4m 11cm of wallpaper. He uses 274cm for covering a wall panel. How many cm of wallpaper does he have left over?

(7)

R
W

GO TO NEXT PAGE

- 6 (a) Tom is completing a table of values for the formula $3n-7$. He has completed the first row of the table. Complete the table with the two missing values.

n	$3n-7$
5	8
19	
	80

- (b) Jon is working on a similar table of values for the formula $2n+5$.

Which formula has the bigger value, when $n = 5$?
 [Give your answer as $2n+5$ or $3n-7$.]

ANSWER

- (c) Which formula has the bigger value, when $n = 19$?
 [Give your answer as $2n+5$ or $3n-7$.]

--

- (d) For which value of n are the two formulas equal?

$n = \dots\dots\dots$

Question (and working space)

ANSWER

Please do not write in this space

7 64,395 tickets were sold for a concert.

(a) How many tickets were sold, rounded, to the nearest thousand?

(b) How many tickets were sold, rounded to the nearest hundred?

(c) How many tickets were sold, rounded, to the nearest ten?

8 This question involves 'powers'. Each blank square can be completed with any of the single digits, from 0-9. Fill in the blank squares to complete the calculations correctly.

(a) ["3 to the power of 4 equals"]

$$\begin{array}{c} \square \\ 3 \end{array}^4 = \begin{array}{|c|c|} \hline \square & \square \\ \hline \end{array} \begin{array}{c} 1 \\ \square \end{array}$$

(b)

$$\begin{array}{c} \square \\ \square \end{array}^3 = \begin{array}{|c|c|} \hline \square & \square \\ \hline \end{array} \begin{array}{c} 6 \\ 4 \end{array}$$

(c)

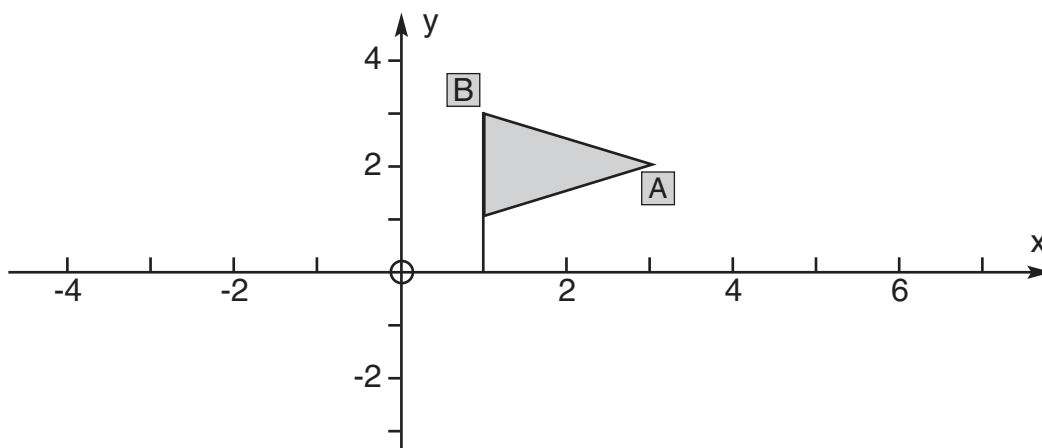
$$\begin{array}{c} \square \\ \square \end{array}^{\square} = \begin{array}{|c|c|c|} \hline \square & \square & \square \\ \hline \end{array} \begin{array}{c} 1 \\ 2 \\ 5 \end{array}$$

(6)

R
W

GO TO NEXT PAGE

9



(a) What are the co-ordinates of point A?

ANSWER

(__ , __)

(b) The shape on the diagram is going to be reflected in the x-axis. What will be the co-ordinates of point A after the reflection?

(__ , __)

(c) The shape on the diagram is going to be reflected in the y-axis. What will be the co-ordinates of point B after the reflection?

(__ , __)

(d) The shape on the diagram is going to be rotated 180° around point (0,0). What will be the co-ordinates of point B after the rotation?

(__ , __)

(4)

R
W

Question (and working space)

ANSWER

Please do not write in this space

11 (a) Work out

$$\frac{2}{5} + \frac{3}{10} =$$

(b) Work out

$$\frac{9}{7} - \frac{5}{14} =$$

(c) Work out (and simplify)

$$\frac{2}{3} \times \frac{3}{4} =$$

(d) What is half of $1\frac{3}{8}$?

(e) What is the value of $5 \div \frac{1}{3}$?

12 Place the following in the correct order of size: 0.503, 0.53, 0.5003, and 0.529.

..... > > >

(6)

R
W

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

13 Think about the number sequence:

7, 12, 17, 22, 27,

(a) What will be the next term in this sequence?

(b) What will be the 11th term in this sequence?

(c) How much bigger will the 167th term be than the 164th?

(d) The formula for each term of the sequence above is $5n+2$.

What is the equivalent formula for each term of the related sequence:

4, 9, 14, 19, 24,

(e) What is the equivalent formula for each term of the similar sequence:

10, 17, 24, 31, 38,

(5)

R
W

GO TO NEXT PAGE

15 This is part of the timetable for Virgin East Coast trains from London to Newcastle.

London King's Cross	11.30
Peterborough	12.16
Newark	12.44
Doncaster	13.10
York	
Darlington	14.06
Newcastle	14.44

York is exactly half way, in terms of time, between Doncaster and Darlington.

(a) How long, in minutes, does it take to travel from Peterborough to Doncaster?

(b) How long, in minutes, does it take to travel from Newark to York?

(c) A return train, travelling in the opposite direction at the same speed, leaves Newcastle at ten to nine in the evening. What will the timetable show as its arrival time in Darlington?

(d) When will the return train reach London King's Cross?

Question (and working space)

ANSWER

Please do not write in this space

16 A 'reverse' number is a two digit number written in reverse order. For example, 14 has a reverse of 41. The reverse of 64 is 46.

For each part of this question, indicate if the statement is **always**, **sometimes** or **never** true.

(a) If a number is prime then its reverse is also prime.

[Indicate: always, sometimes or never true.]

(b) If a number is divisible by 3 then its reverse is also divisible by 3.

(c) A number plus its reverse is a prime.

(3)

R
W

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

17 An acre is a measurement of land area used by farmers. It is a rectangle a furlong long and a chain wide. There are 8 furlongs in a mile and 10 chains in one furlong.

How many acres are there in one square mile?

18 (a) A group of eight pupils obtain scores on their spelling test of 15, 19, 23, 43, 47, 48, 50 and 51.

How many of them scored above the average?

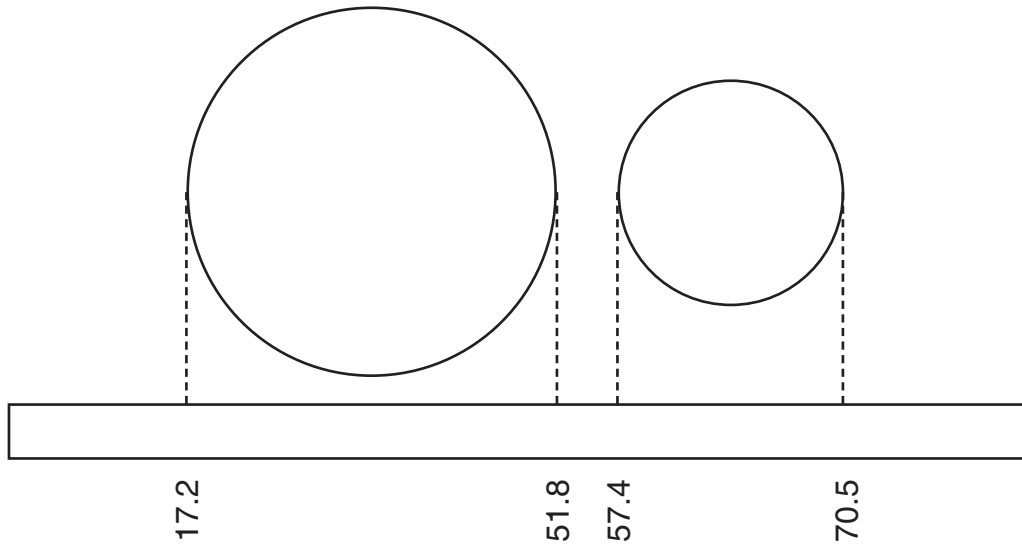
(b) Another group of twenty had to complete the same test. Nineteen of them did it first and had an average of 35. The other pupil did the test a day later and scored 55.

What is the average for this group of twenty?

R
W
(3)

GO TO NEXT PAGE

19 Two different spheres are placed next to a ruler. The position of the edges of the spheres, in centimetres, is read from the ruler as shown in the diagram.



(a) What is the diameter of the smaller sphere?

(b) What is the radius of the larger sphere?

(c) How far apart are the centres of the spheres?

END OF TEST (You should have completed 19 questions.)



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Published by The Consortium of Selective Schools in Essex,
P.O. Box 3087, Chelmsford, Essex CM1 3SY.

Paper Notes: 11+ Maths Question Booklet

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

Overview

This is a **CSSE 11+ Mathematics Paper** published by **The Consortium of Selective Schools in Essex** for **2018 entry** (Test 2). It is designed for Year 6 pupils preparing to sit the 11+ entrance examination for grammar schools in Essex, assessing the mathematical knowledge and reasoning skills expected at the end of Key Stage 2. The paper consists of **19 questions** and must be completed in **60 minutes** without the use of a calculator.

The questions span a wide range of mathematical topics, from straightforward arithmetic and place value through to coordinate geometry, algebraic sequences, and problem solving with real-world contexts such as currency exchange and train timetables. Most questions are structured with multiple parts, rewarding both procedural fluency and deeper understanding. The paper allocates **60 marks** in total, distributed unevenly across questions according to their length and difficulty.

This question booklet suits pupils revising for the full 11+ exam, offering a representative sample of the breadth and standard of questions they will encounter. The mix of short-answer calculation and extended reasoning tasks provides a realistic test environment, helping students build both speed and accuracy under timed conditions. The paper is marked out of 60, with scores used to benchmark performance against the competitive entry threshold.

How this paper is organised

The paper opens with three pages of administrative instructions and candidate information fields, followed by **19 questions** spread across pages numbered 1 to 13 (question pages 3 to 15 of the booklet). Each question is assigned a mark value shown in parentheses at the top of the page: for example, Question 1 is worth 5 marks, Question 2 is 7 marks, and so on. The total is **60 marks**. Time allowed is **60 minutes**, meaning roughly three minutes per question on average, though longer multi-part questions naturally require more time.

Each page provides a generous working space beside the question stem, and an answer column on the right for final answers. Students are instructed to show their working in the white areas and to write only their final answer in the designated box. Cross-referencing the page headers, the mark allocations are: page 1 (5), page 2 (7),

page 3 (5), page 4 (6), page 5 (4), page 6 (5), page 7 (6), page 8 (5), page 9 (4), page 10 (5), page 11 (6), page 12 (3), and page 13 (3).

The layout is clear and well spaced, with each question beginning on a fresh section or page. The rubric emphasises that calculators are **not permitted**, reinforcing the focus on mental arithmetic, written methods, and mathematical reasoning. The final page reminds candidates that they should have completed 19 questions, serving as a useful checkpoint before time is called.

Topics covered

- Number operations: addition, subtraction, multiplication, and division with whole numbers up to four or five digits, including problems requiring careful column methods and mental strategies
- Negative numbers and directed calculation: evaluating expressions such as $(7 - 13) + (4 - 6)$ and understanding arithmetic with integers below zero
- Fractions and decimals: converting fractions to decimals (e.g. $7 \div 8$), ordering decimals to several places, and performing mixed operations including addition, subtraction, multiplication, and simplifying fractions
- Metric conversions and units: converting kilograms to grams, metres and centimetres, and manipulating measurements in practical problem contexts
- Powers and indices: evaluating expressions such as 3^4 , recognising patterns in powers, and filling in missing bases or exponents to complete calculations like $\square^3 = 64$
- Algebraic sequences and formulae: completing tables for linear expressions (e.g. $3n - 7$, $2n + 5$), comparing values for different n , and finding the value of n that makes two formulae equal
- Coordinate geometry and transformations: reading coordinates from a grid, reflecting points in the x -axis and y -axis, and rotating shapes 180° around the origin
- Rounding: rounding a five-digit number to the nearest thousand, hundred, and ten, understanding place value and the effect of rounding on precision
- Venn diagrams and set reasoning: classifying numbers from 1 to 9 according to multiple properties (multiples of 2, multiples of 3, prime numbers) and identifying regions of overlap
- Real-world problem solving: interpreting a line graph of currency exchange rates (Brexit context), calculating costs and percentage changes, and working with train timetables to find journey times and arrival times
- Mean (average) calculations: finding the mean of a data set, determining how many values lie above the mean, and recalculating the mean when an additional data point is added
- Area and historical units: understanding the acre as a composite unit (furlong by chain) and converting square miles to acres using multi-step reasoning
- Reverse numbers and divisibility: investigating properties of two-digit numbers and their reversals, testing statements for always/sometimes/never truth and justifying answers with examples or counterexamples
- Measurement and geometry with circles: reading positions from a ruler to find diameters, radii, and distances between centres of spheres, applying knowledge of circle properties in a practical context

How to use this paper for revision

- Practise long multiplication and division by hand until you can work confidently without a calculator, as every question in this paper relies on secure written methods and mental arithmetic.
- Revise how to evaluate expressions with brackets and negative numbers, ensuring you follow the correct order of operations and handle minus signs carefully in multi-step calculations.
- Work through examples of algebraic sequences, substituting different values of n into expressions like $3n - 7$, and learn to rearrange simple formulae to solve for n when two expressions are equal.
- Strengthen your understanding of coordinate transformations by sketching grids and practising reflections in both axes and rotations around the origin, checking that coordinates change sign correctly.
- Review how to order decimals and compare fractions by converting to a common denominator or decimal form, and practise simplifying fractions after multiplication or division.
- Read line graphs and tables carefully, identifying the scale and units before extracting values; practise currency and percentage change problems using real-world data such as exchange rates.
- Time yourself on past papers to build stamina for the full 60 minutes, aiming to allocate roughly one minute per mark and leaving a few minutes at the end to check your answers.

Common mistakes to avoid

- Forgetting to simplify fractions after multiplication or division, leaving answers such as $\frac{6}{12}$ instead of $\frac{1}{2}$ and losing marks for not expressing the final answer in its simplest form.
- Misreading coordinates, especially after transformations; for example, reflecting $(3, 2)$ in the y-axis should give $(-3, 2)$, not $(3, -2)$, because only the x-coordinate changes sign.
- Rounding errors when asked to round to different place values in sequence, such as rounding 64,395 to the nearest hundred as 64,400 but then incorrectly rounding again to the nearest thousand.
- Mixing up diameter and radius in circle problems, halving when you should double or vice versa, and failing to read the ruler markings carefully to find the correct edge positions.
- Confusing the order of operations with negative numbers, for instance calculating $(7 - 13) + (4 - 6)$ as $7 - 13 + 4 - 6$ without brackets and arriving at the wrong answer.
- Misinterpreting Venn diagram regions, placing numbers in the wrong section because you overlook that a number can satisfy more than one property or none at all.

Exam technique

Start by reading every question carefully, noting the number of marks and the type of answer required (for example, a decimal, a simplified fraction, or a coordinate pair). Questions with more marks usually have multiple parts, so ensure you attempt every part even if you find one tricky. Write all working in the space provided; partial credit is often awarded for correct intermediate steps, and showing your method helps you spot errors when checking.

Pace yourself by aiming to spend roughly one minute per mark, which gives you about three minutes for a three-mark question and six minutes for a six-mark question. If a question is taking too long, move on and return to it at the end rather than letting it eat into time for easier questions you might otherwise answer correctly. Use the mark allocation as a guide: a one-mark question should have a quick, direct answer, whereas a five-mark question will involve several steps or multiple sub-parts.

Leave a few minutes at the end to review your answers, checking that you have filled in every answer box and that your final answers make sense in the context of the question. Look out for common slips such as forgetting to convert units, rounding to the wrong place value, or writing coordinates in the wrong order. If you are working through

this paper at home, mark your attempt against a mark scheme as soon as possible afterwards, noting any recurring mistakes to focus on in future revision.

What to revise alongside this paper

To build on the arithmetic skills tested here, revise efficient methods for multiplying and dividing larger numbers, including the grid method and short division, and practise converting between fractions, decimals, and percentages fluently. Strengthen your understanding of negative numbers by working through problems that involve subtracting a larger number from a smaller one and evaluating expressions with multiple operations.

For algebra and sequences, move on to solving simple linear equations (for example, finding n when $3n - 7 = 20$) and recognising the n th term of arithmetic sequences from a list of values. Extend your coordinate geometry by exploring translations and enlargements, and practise plotting shapes on all four quadrants of a grid. Understanding symmetry and angle properties of 2D shapes will also support transformation work.

In problem solving, practise interpreting a wider range of graphs and charts (bar charts, pie charts, and scatter graphs) and applying ratio and proportion to real-life contexts such as recipes, scale drawings, and best-buy calculations. Revisiting topics such as area, perimeter, and volume of common shapes will prepare you for more complex multi-step problems at secondary level.

Key terms

Place value, Rounding, Powers (indices), Formula, Sequence, Coordinate, Reflection, Rotation, Transformation, Venn diagram, Multiples, Prime number, Mean (average), Percentage, Diameter, Radius

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MATHEMATICS MAIN PAPER FOR 2018 ENTRY TEST 2 – ANSWERS

1 mark for each correct answer, Total 60 marks.

	ANSWER
1a	522
1b	4011
1c	1238
2a	= 39 any of: 31 + 8 32 + 7 34 + 5 35 + 4 37 + 2 38 + 1
2b	6

	ANSWER
3a	1431
3b	159
3c	-8 Must be clearly negative
4a	0.875
4b	7000
5a	2320
5b	137(cm) units not needed

	n	$3n-7$
6a	5	8
	19	50
	29	80

	ANSWER
6b	$2n + 5$
6c	$3n - 7$
6d	$n = \dots 12 \dots$

	ANSWER
7a	64,000
7b	64,400
7c	64,400

	ANSWER
9a	(<u>3</u> , <u>2</u>)
9b	(<u>3</u> , <u>-2</u>)
9c	(<u>-1</u> , <u>3</u>)
9d	(<u>-1</u> , <u>-3</u>)

	ANSWER
10a	4
10b	3, 6, 9
10c	6
10d	5, 7
10e	1

8a

$$\begin{array}{|c|} \hline 4 \\ \hline \end{array} \begin{array}{|c|} \hline 3 \\ \hline \end{array} = \begin{array}{|c|c|} \hline 8 & 1 \\ \hline \end{array}$$

8b

$$\begin{array}{|c|} \hline 3 \\ \hline \end{array} \begin{array}{|c|} \hline 4 \\ \hline \end{array} = \begin{array}{|c|c|} \hline 6 & 4 \\ \hline \end{array}$$

8c

$$\begin{array}{|c|} \hline 3 \\ \hline \end{array} \begin{array}{|c|} \hline 5 \\ \hline \end{array} = \begin{array}{|c|c|c|} \hline 1 & 2 & 5 \\ \hline \end{array}$$

	ANSWER
11a	$\frac{7}{10}$ or equivalent
11b	$\frac{13}{14}$ or equivalent
11c	$\frac{1}{2}$
11d	$\frac{11}{16}$ or equivalent
11e	15
12	<p>0.53 ></p> <p>0.529 ></p> <p>0.503 ></p> <p>0.5003</p>

	ANSWER
13a	32
13b	57
13c	15
13d	$5n-1$ (or $-1+5n$)
13e	$7n+3$ (or $3+7n$)

	ANSWER
14a	£100 (£ not needed)
14b	£80 (£ not needed)
14c	£112 (£ not needed)
14d	12% (% not needed)

	ANSWER
15a	54
15b	54
15c	21.28 (or 2128) (no alternatives)
15d	00.04 or equivalent (not 1204)

	ANSWER
16a	Sometimes
16b	Always
16c	Never

	ANSWER
17	640
18a	5
18b	36

	ANSWER
19a	13.1
19b	17.3
19c	29.45