



KS2 into KS3

Mathematics Work Booklet

belonging to

_____ Form : 7__

Welcome to
St Olave's
From
The Mathematics
Department

We are sure you will enjoy your
mathematical (and other) studies whilst at
St Olave's.

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Note to Parents/Carers

Dear Parent/Carer,

I am very pleased your family has chosen Saint Olave's. The Maths department has been working hard to implement the [Mastery approach](#) at Key Stage 3. I appreciate that the students that join us in Year 7 are mathematically skilled for their age.

I have noticed that sometimes, when faced with much more challenging (and usually unfamiliar) problems, some students (many more than I would like) lack the resilience and mathematical creativity to select the relevant knowledge and skills to generate a pathway to the solution.

The main aim of Mastery is to instil this fluency and resilience. Most of our students study Mathematics to Year 13 and beyond. This firm foundation will ensure they thrive and are able to take their mathematics as far as they desire.

One of the pillars of Mastery is Coherence. This involves smaller steps through the content so that all students can master processes, connect new knowledge and skills to prior learning and have the skill and confidence to apply their learning in unfamiliar scenarios. In May, OfStEd published a [summary](#) of recent research into best practice in teaching and learning mathematics which is fully aligned with the Mastery approach.

I have a favour to ask of you.

I ask you to trust us. Please trust us to teach your son the right content at the right time. Trust us to stretch and challenge your son in the right way.

Learning new content for the sake of learning new content is often counterproductive. It really does not matter that your son still has not learnt a particular topic by age 12 when their cousin learnt it last year.

So, please do not attempt to teach your son 'more advanced' mathematics. Please do not engage with home tutoring (either by parents/carers, older students or other professionals). The best way to support your son is to talk to him about the methods he has learnt and to ask him to explain the structure beneath the maths he has learnt. You have placed your son's mathematical learning in our hands, and we take that responsibility very seriously, from start to finish.

This year, we are even more aware that students may be worried about whether they will cope with life at Saint Olave's. We will ensure that lessons are designed in such a way to check expected knowledge and skills and we will adapt to accommodate the needs of the students in front of us.

For students who require additional support, we run weekly maths clinics and we match carefully selected older students with younger students for mentoring. If you have any concerns at all regarding the progress made by your son, please contact me or their maths teacher right away.

Thank you in advance for all the support I know you will give during your time with us.

Miss Meera Lawrence
Head of Mathematics and Computing Faculty

Mathematics Transition Activities

In this booklet, there are **two** activities for you to complete **before** you start at St. Olave's and two activities which you will complete **during your first two mathematics lessons**.

As well as the homework tasks, you may also like to have a go at the puzzles at the back of this booklet.

All the information required to complete the activities is in this booklet and can also be found on the school website.

Please note:

- (a) Spend no more than 1 hour per day, for a maximum of 5 days when completing the Summer tasks.
- (b) Try to set your answers out neatly. Start by using the squared paper opposite. If you run out of space used separate paper.

Summer Task 1 - Four Fours?

What numbers can you make using four 4s and any mathematical symbols?

Be careful with the order of operations and use brackets, as necessary.

For example: $4 + 4 + 4 + 4 = 16$

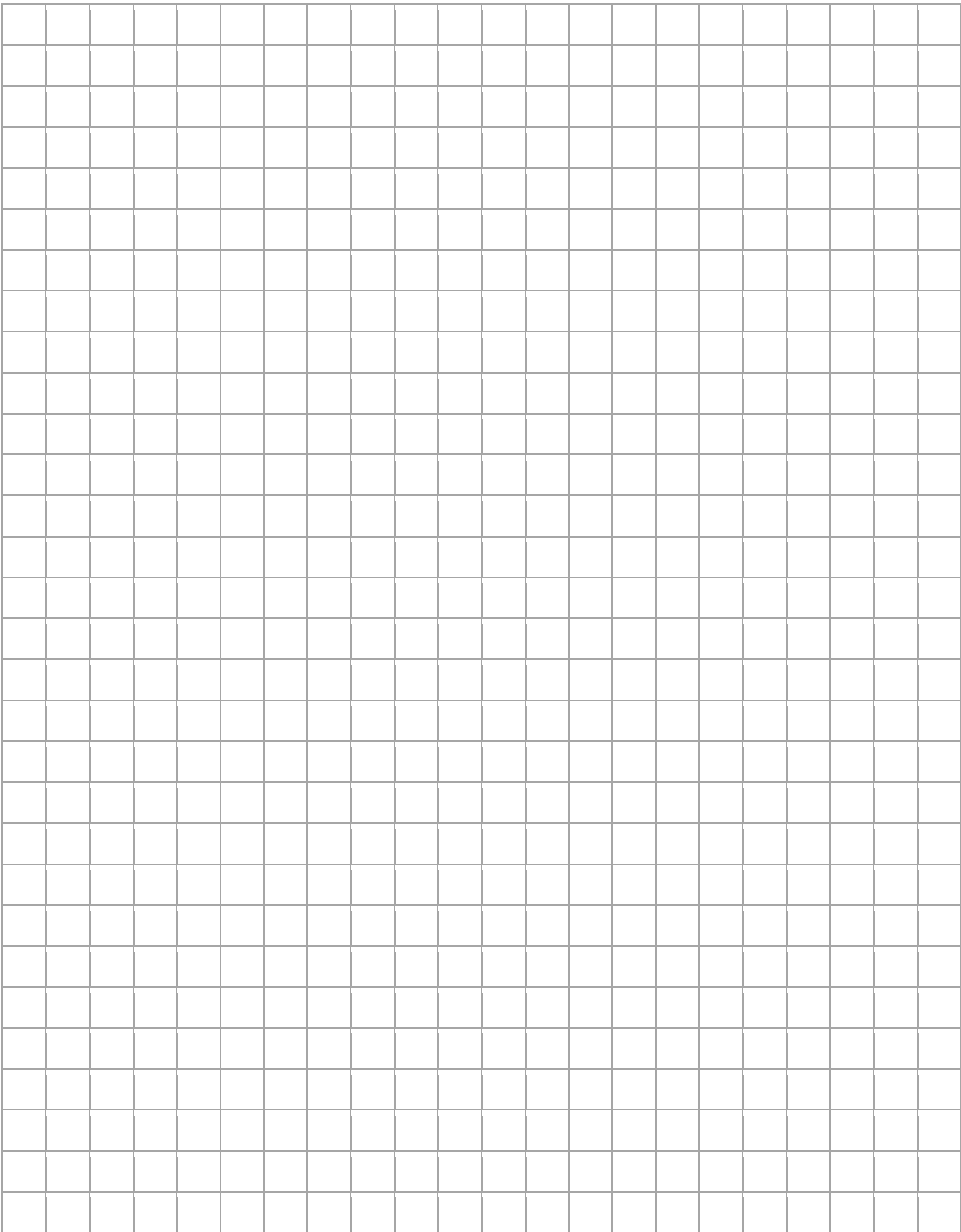
or $4 \times 4 + 4 \times 4 = 32$

or $\sqrt{4} + \sqrt{4} + \frac{4}{4} = 5$

Can you make all the numbers from 1 to 10?

Which numbers can you make from 11 to 50?

What is the largest number you can make?



Summer Task 2 – Written and Mental Methods

Spend a maximum of around 1 hour on this task.

Solve the following calculations without use of a calculator:

A

$$8.4 + \square + 6.7 = 20$$

B

$$26.76 + 39.25 = \square$$

C

$$\square + 42.9 = 63.2$$

D

Find the sum of the first 10 square numbers

E

Subtract 199 from 7998

F

What is the difference between 9^2 and 13^2 ?

G

$$\square - 12.59 = 38.23$$

H

$$18.24 - 7.25 = \square$$

I

Multiply 0.125 by 12

J

What is the product of 1.8 and 3?

K

$$24 + 14 + 6 \times 3 = \square$$

L

$$0.5 \times 14 \times 9 = \square$$

M

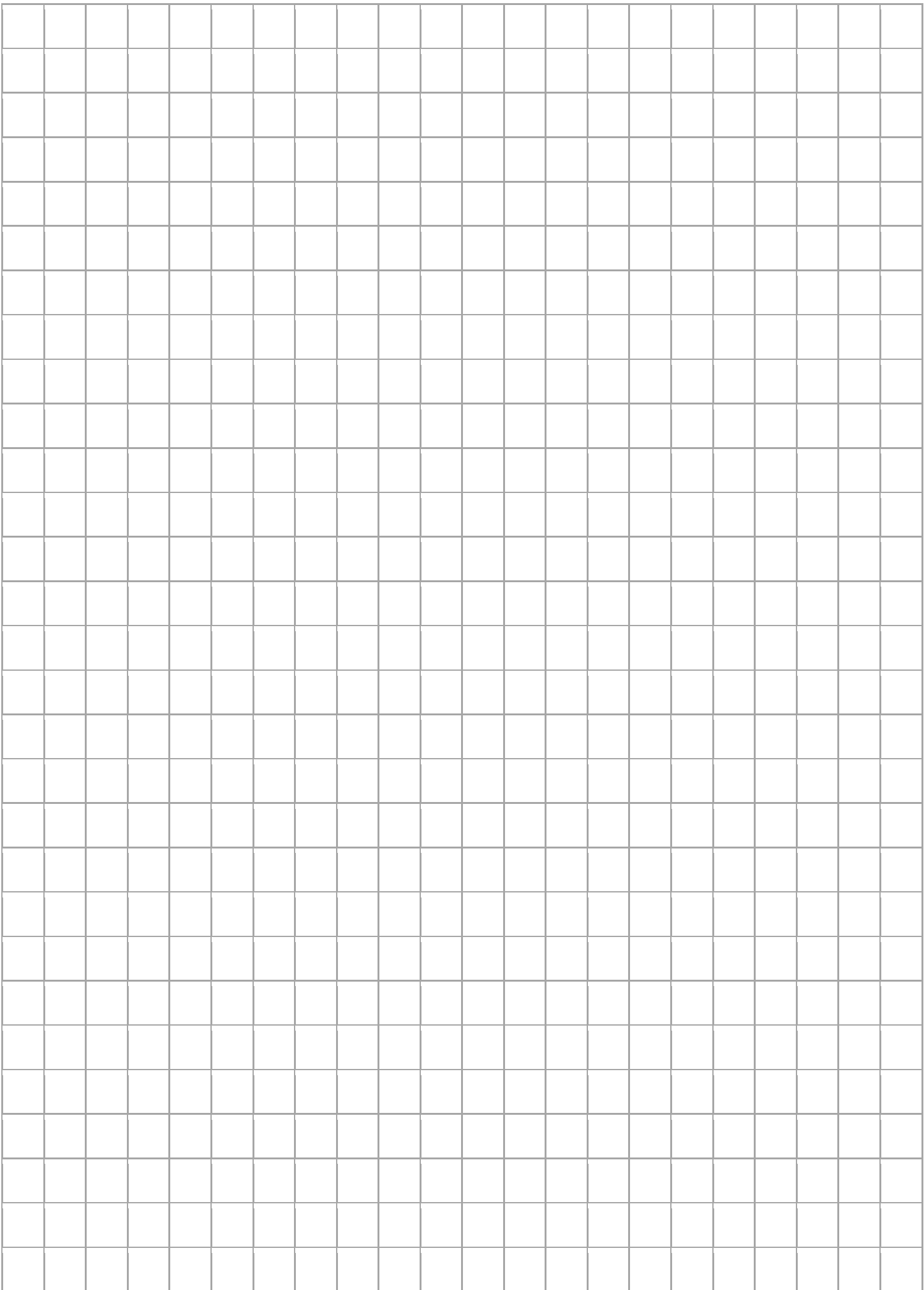
Divide 234.5 by 7

N

$$0.07 \times \square = 0.056$$

O

$$357 \div 2.5 =$$



Summer Task 3 - Calculator Skills

Please have a go at the second, third and fourth questions of the Calculator Crunch Challenge. All the questions can be found here: <https://mei.org.uk/Primary-KS2-3-Transition> but the individual resources are linked directly, below:

Question 2

[Question](#)

[Video](#)

Question 3

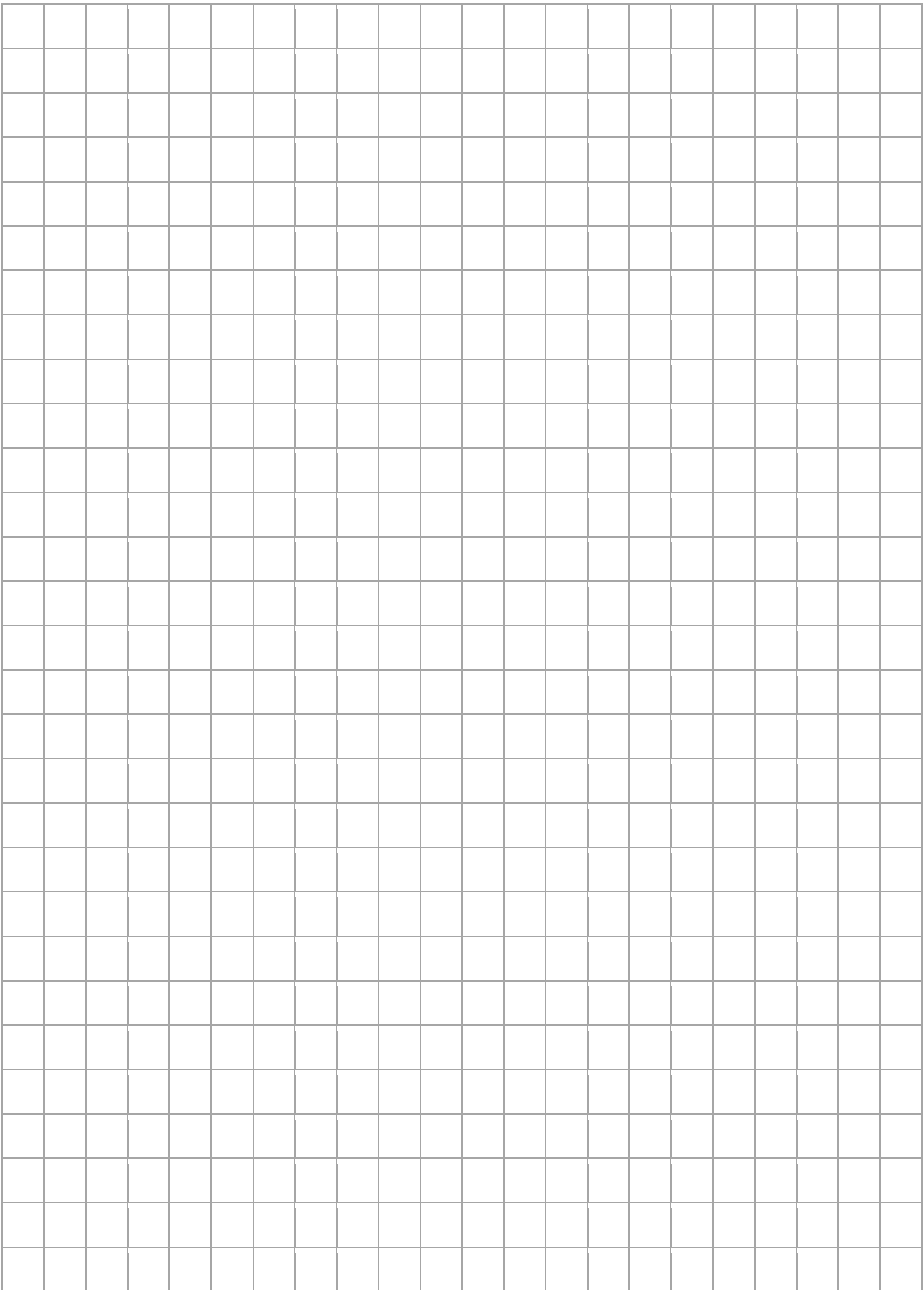
[Question](#)

[Video](#)

Question 4

[Question](#)

[Video](#)



Not to be attempted until during your first Year 7 Maths lesson.

September Task 3 - The 1984 Problem

Nineteen Eighty-Four is the title of a famous book.

The year 1984 contains four digits: 1 9 8 4



Your task is to try to write down calculations that generate as many of the whole numbers (integers) from 1 to 20 inclusive using **ALL** the digits of the year 1984 **ONCE** and any other mathematical symbol found on a calculator.

For example: $1 = (8 \div 4) - 1^9$ and $2 = 8 - (\sqrt{9} + \sqrt{4} + 1)$

Now find one more way for each of 1 and 2. Then continue from 3 onwards. (Do not necessarily try to find them in numerical order!)

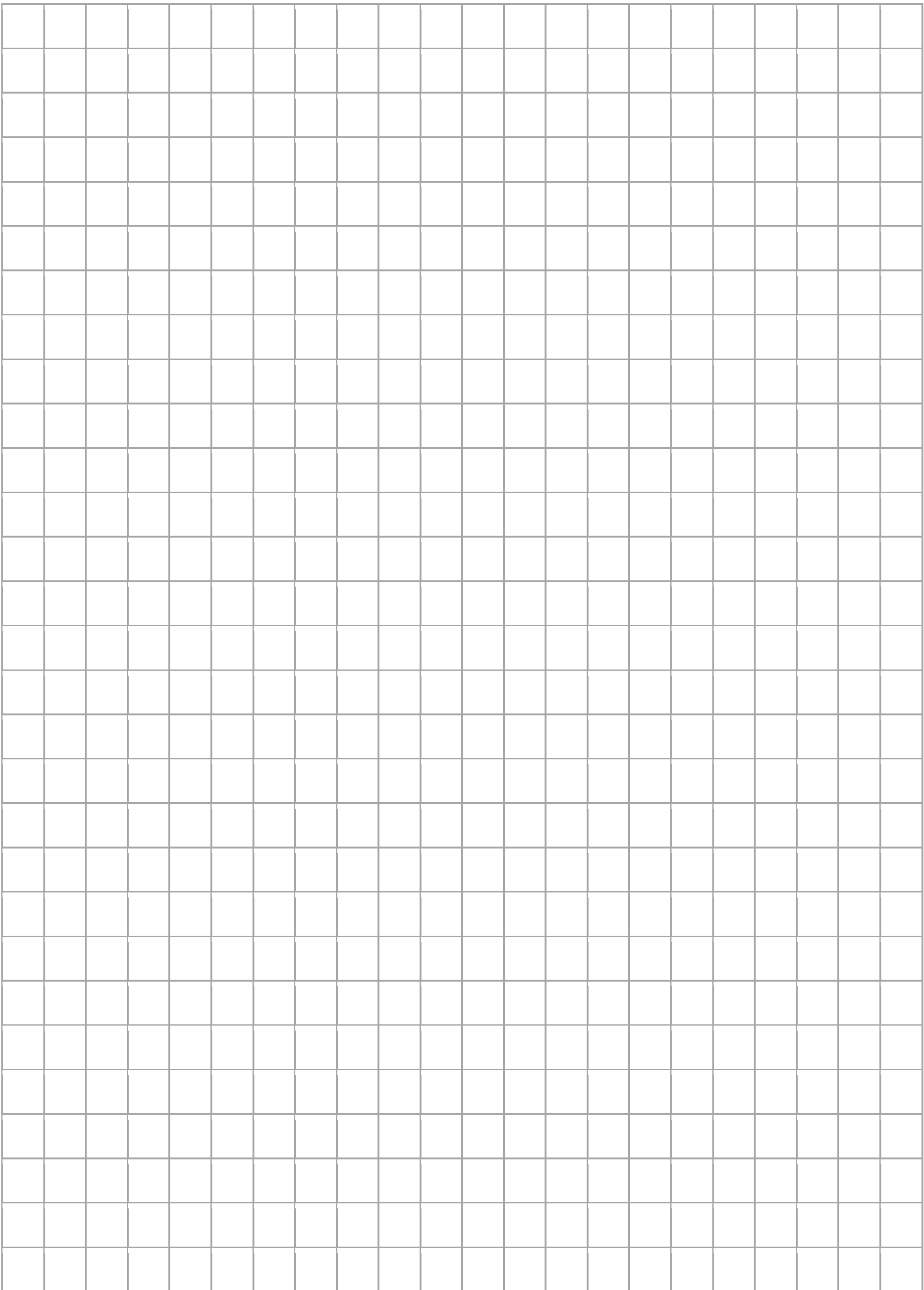
Special Challenge

How many of the numbers 1 to 20 can you find using the digits of the year 1984 in the order they appear i.e. 1 then 9 then 8 then 4?

E.g. $3 = (-1)^9 + 8 - 4$

Cross Curricular Link:

For your next mathematics lesson find out a little about the book "Nineteen Eighty-Four" e.g. author, brief synopsis etc.



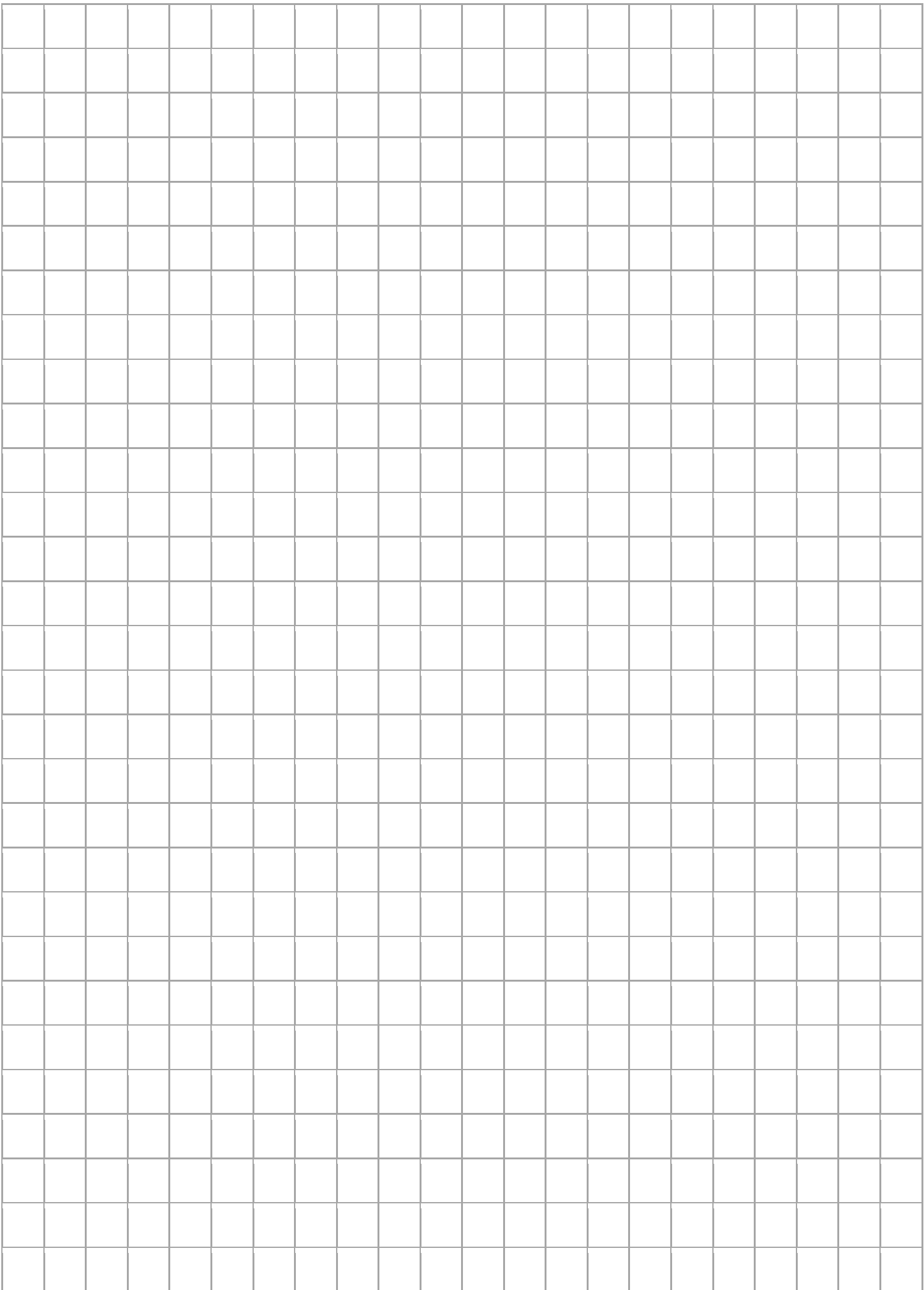
September Task 4

Not to be attempted until your teacher tells you.

1. What is the smallest number which you can subtract from a million to make the answer exactly divisible by 7893? What is the smallest number you can add to a million to make the answer exactly divisible by 9821?
2. How long in days, hours, minutes, and seconds is one million seconds?
How old are you in seconds?
3. Seven sisters were left a total of £1 million by a rich aunt. Each of the sisters had 3 children, so they kept half of the money and split the rest equally between their children. How much did the seven sisters keep? How much did they give to each of their children?

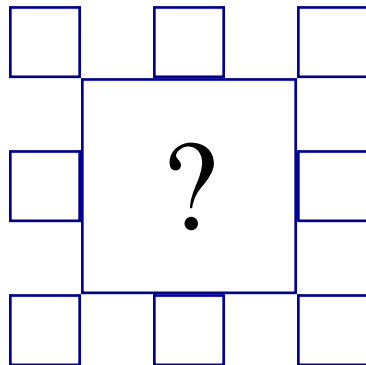
Challenge: Two pence coins are used to make a square. If one million coins were used, what would be the length of the sides of the square? How many square metres would these one million coins cover?

(The diameter of a 2p coin is 25mm to the nearest millimetre.)

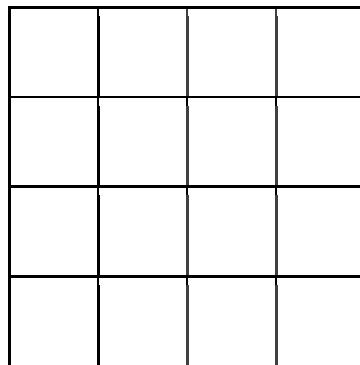


Mathematical Puzzles

Insert a number into each of the boxes below to make this statement correct: The sum of all the numbers is 108 and each set of 3 adjoining boxes has a sum of 42.



Use the numbers 1 to 16 inclusively in this magic square to make all the columns, rows and main diagonals add up to the same total.



In the following calculation all the symbols represent digits. Replace the symbols with digits to make the calculation correct. The same symbols must be replaced by the same digits. **[This is difficult!]**

$$\begin{array}{cccc}
 \bullet & \heartsuit & \star & \heartsuit \\
 + & \bullet & \star & \blacktriangle & \bullet \\
 \hline
 \star & \blacktriangle & \hexagon & \oplus
 \end{array}$$