

Year 6 to 7
Mathematics Holiday Booklet
(Challenging)

Instructions:

Complete a section of this booklet each week over
the summer holidays.

Please bring this booklet with you for your first day
at Hellesdon High School

Addition using the column method:

Memory

Column method is used for addition. Line up the units, tens hundreds etc. Then simply start from the right and add the columns together. If you need to then carry over to the next column.

1. Whole numbers

Question $234 + 149$

	H	T	U
+	2	3	4
	1	4	9
	3	8	3

$4+9=13$ So we need to put a 1 in the Tens column and the 3 remains in the units column

- | | | | |
|---|---|---|---|
| 1) $\begin{array}{r} 1 \\ 327 \\ + 145 \\ \hline 472 \end{array}$ | 2) $\begin{array}{r} 428 \\ + 134 \\ \hline \end{array}$ | 3) $\begin{array}{r} 505 \\ + 165 \\ \hline \end{array}$ | 4) $\begin{array}{r} 356 \\ + 129 \\ \hline \end{array}$ |
| 5) $\begin{array}{r} 427 \\ + 344 \\ \hline \end{array}$ | 6) $\begin{array}{r} 308 \\ + 126 \\ \hline \end{array}$ | 7) $\begin{array}{r} 625 \\ + 133 \\ \hline \end{array}$ | 8) $\begin{array}{r} 357 \\ + 326 \\ \hline \end{array}$ |
| 9) $\begin{array}{r} 253 \\ + 129 \\ \hline \end{array}$ | 10) $\begin{array}{r} 438 \\ + 217 \\ \hline \end{array}$ | 11) $\begin{array}{r} 326 \\ + 108 \\ \hline \end{array}$ | 12) $\begin{array}{r} 352 \\ + 236 \\ \hline \end{array}$ |

Subtraction using the column method:

Memory

Column method is used for Subtraction. Line up the units, tens hundreds etc. Then simply start from the right and subtract the bottom number from the top. If the top digit is smaller than the bottom digit you will need to borrow from the tens to allow you to subtract.

1. Whole numbers

Question 364 - 193

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ \begin{array}{r} \cancel{2}3 \quad \cancel{1}6 \quad 4 \\ - 1 \quad 9 \quad 3 \\ \hline 1 \quad 7 \quad 1 \end{array} \end{array}$$

We cannot take 9 away from 6 so we need to borrow 1 from the Hundreds column to make it 16. That leaves us with a 2 in the Hundreds column.

$$\begin{array}{r} 1) \quad 352 \\ - 147 \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 743 \\ - 118 \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 859 \\ - 536 \\ \hline \end{array}$$

$$\begin{array}{r} 4) \quad 475 \\ - 328 \\ \hline \end{array}$$

$$\begin{array}{r} 5) \quad 438 \\ - 229 \\ \hline \end{array}$$

$$\begin{array}{r} 6) \quad 670 \\ - 315 \\ \hline \end{array}$$

$$\begin{array}{r} 7) \quad 384 \\ - 247 \\ \hline \end{array}$$

$$\begin{array}{r} 8) \quad 576 \\ - 327 \\ \hline \end{array}$$

$$\begin{array}{r} 9) \quad 384 \\ - 66 \\ \hline \end{array}$$

$$\begin{array}{r} 10) \quad 843 \\ - 129 \\ \hline \end{array}$$

$$\begin{array}{r} 11) \quad 653 \\ - 243 \\ \hline \end{array}$$

$$\begin{array}{r} 12) \quad 966 \\ - 458 \\ \hline \end{array}$$

Multiplication using the column

Memory

Column method is used for multiplication. Line up the units, tens hundreds etc. Start by multiplying each digit from the top number by the unit digit of the bottom number. (Always go right to left and carry if need to.). Then below this line add a zero under the units and multiply each digit by the tens digit. Repeat this for all digits in the bottom number adding the number of zeros as appropriate. Then add using the column method to get the final answer.

1. Whole numbers

Question 37×6

$$\begin{array}{r} \text{H T U} \\ \times \quad 37 \\ \hline \quad \quad 6 \\ \hline 222 \end{array}$$

6×7 is 42 so put down the 2 and carry the 4.
 6×3 is 18 but we must add the 4 so it becomes 22.
Giving us 222

Question 83×45

$$\begin{array}{r} \text{Th H T U} \\ \times \quad 83 \\ \hline \quad 45 \\ \hline 3320 \\ + 415 \\ \hline 3735 \end{array}$$

Multiply 83 by 40 first,
then multiply 83 by 5.
To multiplying by 40 is the same as multiplying by 10 then 4.
Put down your 0 to multiply by 10 then multiply by 4. 4×3 is 12 so put down the 2 and carry the 1. 4×8 is 32 but we must add the 1 on so it becomes 33. Giving us 3320.
 5×3 is 15 so put down the 5 and carry the 1. 5×8 is 40 but we must add the 1 so it becomes 41.
Giving us 415.
Add the two answers together.

Skill 1

1.
$$\begin{array}{r} \text{t u} \\ 48 \\ \times 3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \text{t u} \\ 57 \\ \times 5 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \text{t u} \\ 79 \\ \times 7 \\ \hline \end{array}$$

4.
$$\begin{array}{r} \text{t u} \\ 63 \\ \times 4 \\ \hline \end{array}$$

5.
$$\begin{array}{r} \text{t u} \\ 86 \\ \times 6 \\ \hline \end{array}$$

6.
$$\begin{array}{r} \text{t u} \\ 74 \\ \times 8 \\ \hline \end{array}$$

7.
$$\begin{array}{r} \text{t u} \\ 93 \\ \times 6 \\ \hline \end{array}$$

8.
$$\begin{array}{r} \text{t u} \\ 62 \\ \times 7 \\ \hline \end{array}$$

9.
$$\begin{array}{r} \text{t u} \\ 75 \\ \times 9 \\ \hline \end{array}$$

Skill 2

1.
$$\begin{array}{r} \text{h t u} \\ 67 \\ \times 22 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \text{h t u} \\ 88 \\ \times 61 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \text{h t u} \\ 97 \\ \times 28 \\ \hline \end{array}$$

4.
$$\begin{array}{r} \text{h t u} \\ 68 \\ \times 29 \\ \hline \end{array}$$

5.
$$\begin{array}{r} \text{h t u} \\ 80 \\ \times 73 \\ \hline \end{array}$$

6.
$$\begin{array}{r} \text{h t u} \\ 56 \\ \times 29 \\ \hline \end{array}$$

Division using short division (bus stop)

Memory

Short division, known as bus stop, is used for division. The Number under the bus stop is the number you are dividing by the number that is outside of the bus stop. Find out how many times the number outside the bus stop goes into the first digit from the left of the main number. Write this on top above it and then add how many are left over in front of the next number. This is repeated until it has been applied to all digits.

Division

1. Whole numbers

Question $648 \div 9$

$$\begin{array}{r} 072 \\ 9 \overline{)648} \end{array}$$

You are dividing by
9 so write down your
9 times table to help you.
9, 18, 27, 36, 45, 54
63, 72, 81, 90

9 does not go into 6 so we put a 0 up top and we still have a 6 left.
9 goes into 64 seven times so we put a 7 up top and we have 1 left over.
9 goes into 18 twice so we put a 2 up top.
72 is our answer.

2. Decimals

Question $2.24 \div 7$

$$\begin{array}{r} 0.32 \\ 7 \overline{)2.24} \end{array}$$

You are dividing
by 7 so write down
your 7 times table
to help you.
7, 14, 21, 28, 35
42, 49, 56, 63, 70

7 does not go into 2 so we put a 0 up top and we still have a 2 left.
(DO NOT FORGET YOUR DECIMAL POINT!)
7 goes into 22 three times so we put a 3 up top and we have 1 left over.
7 goes into 14 twice so we put a 2 up top.
32 is our answer.

Skill 1

$$9 \overline{)927}$$

$$3 \overline{)411}$$

$$9 \overline{)981}$$

$$6 \overline{)924}$$

$$3 \overline{)537}$$

$$6 \overline{)702}$$

$$5 \overline{)575}$$

$$3 \overline{)417}$$

$$4 \overline{)516}$$

$$8 \overline{)984}$$

$$8 \overline{)832}$$

$$5 \overline{)510}$$

Skill 2

$$8 \overline{)4.00}$$

$$2 \overline{)9.72}$$

$$6 \overline{)9.30}$$

$$4 \overline{)8.08}$$

$$3 \overline{)6.87}$$

$$5 \overline{)9.70}$$

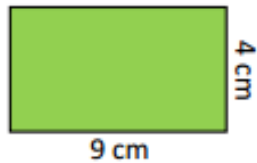
Area of squares and rectangles:

Memory Area is the inside of a shape.

To find the area of a rectangle.

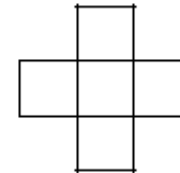
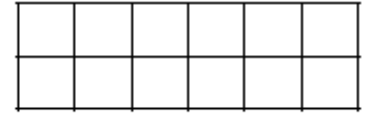
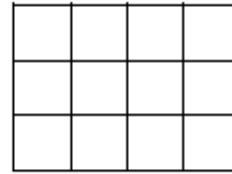
1	2	3
4	5	6

Count the squares
Area = 6 cm^2

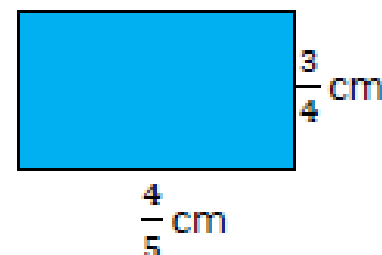
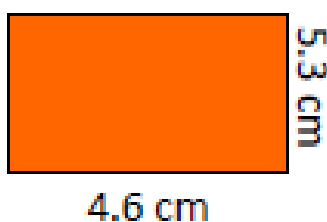
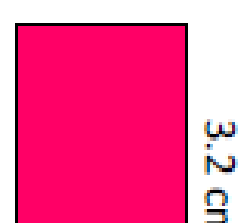
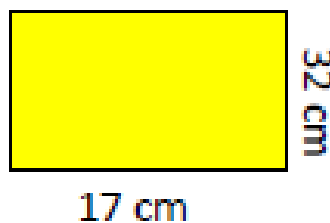
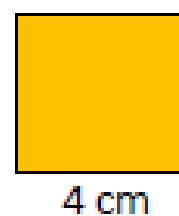
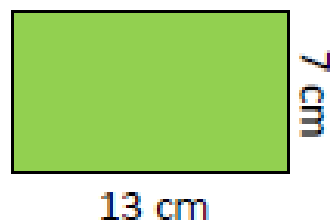
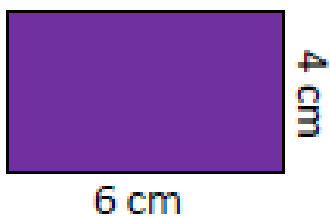
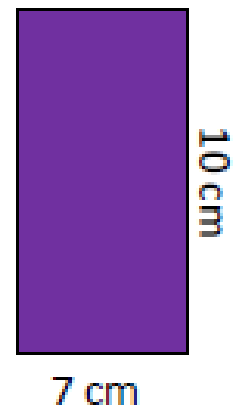
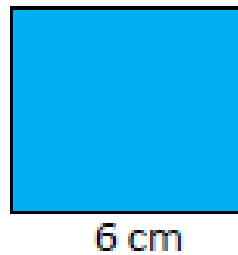
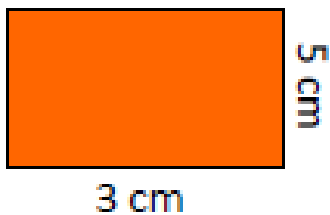


Area = Length \times width.
Area = $9 \times 4 = 36 \text{ cm}^2$

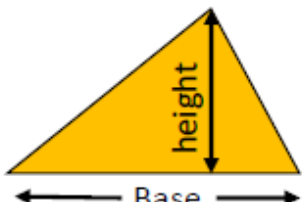
Skill 1 Find the area of these shapes.



Skill 2 Find the area of these shapes.



Area of triangle:



Area of a triangle formula

Memory

$$\frac{1}{2} \text{base} \times \text{height}$$

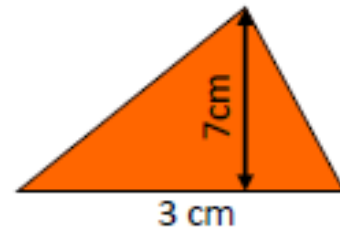
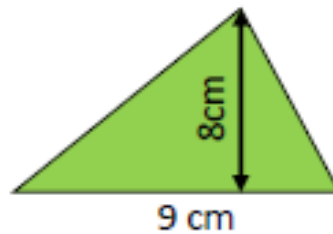
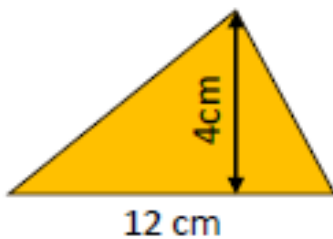
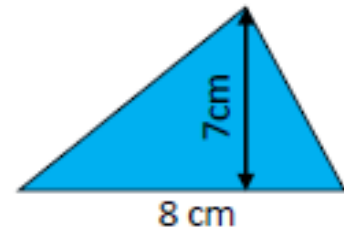
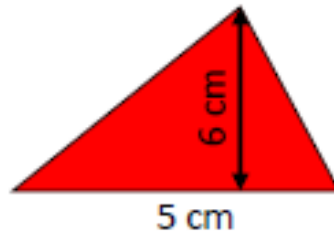
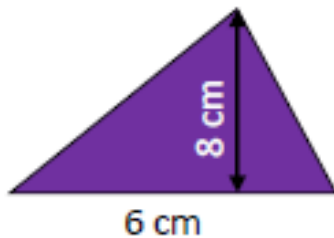
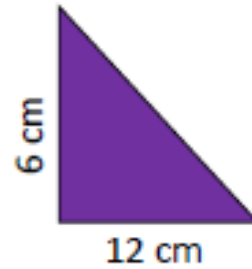
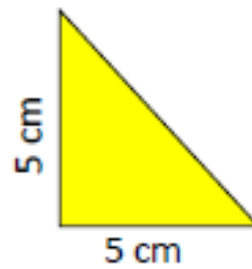
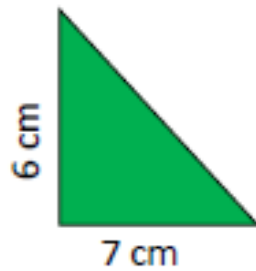
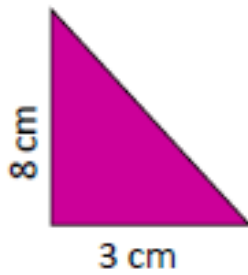
or

$$\frac{\text{base} \times \text{height}}{2}$$

Skill 1

Find the area of these triangles

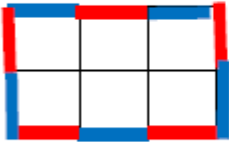
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Perimeter:

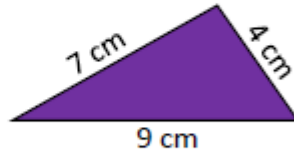
Memory

Perimeter is the distance around the outside of a shape



Count the outside edges highlighted in blue and red.

$$\text{Perimeter} = 10\text{cm}$$

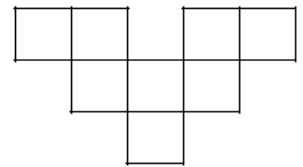
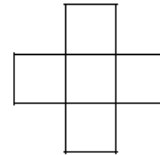
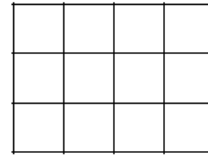


Add all the edges together.

$$\text{Perimeter} = 4 + 7 + 9 = 20\text{cm}$$

Skill 1

Find the perimeter of these shapes.



Skill 2

Find the perimeter of these shapes.

