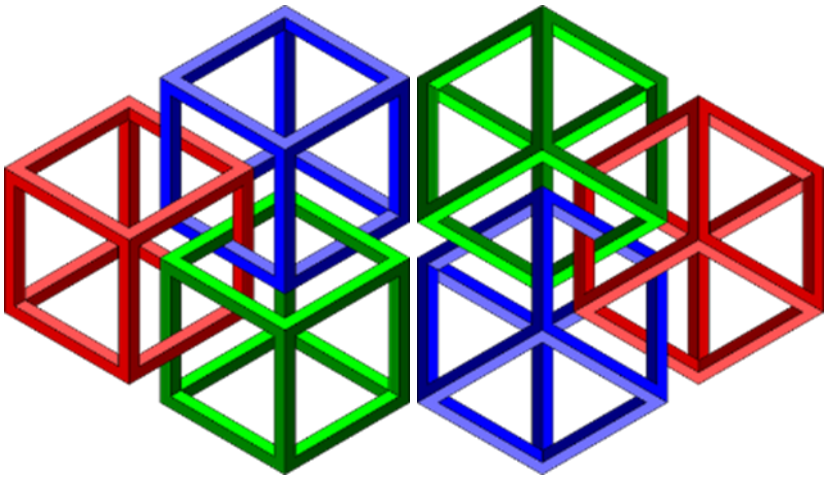
MATHS PUZZLE BOOK

VOLUME THREE

= for keen puzzlers aged 9 to 105! =



- ◊ The reason for producing this Puzzle Book is because I am aware that in this era of the "virus", periods of boredom will creep in and the puzzles can be done as light relief.
- ◊ This document is not connected to any organisation and there are no financial implications involved. This is me giving back to Society which has treated me well.
- ◊ This booklet can be printed in black and white or colour and it can be printed page by page if you do not want to print the whole document.
- ◊ I have a great deal more material to consider for further publications. Do let me know which are your favourite puzzles and I will include more in the next edition.

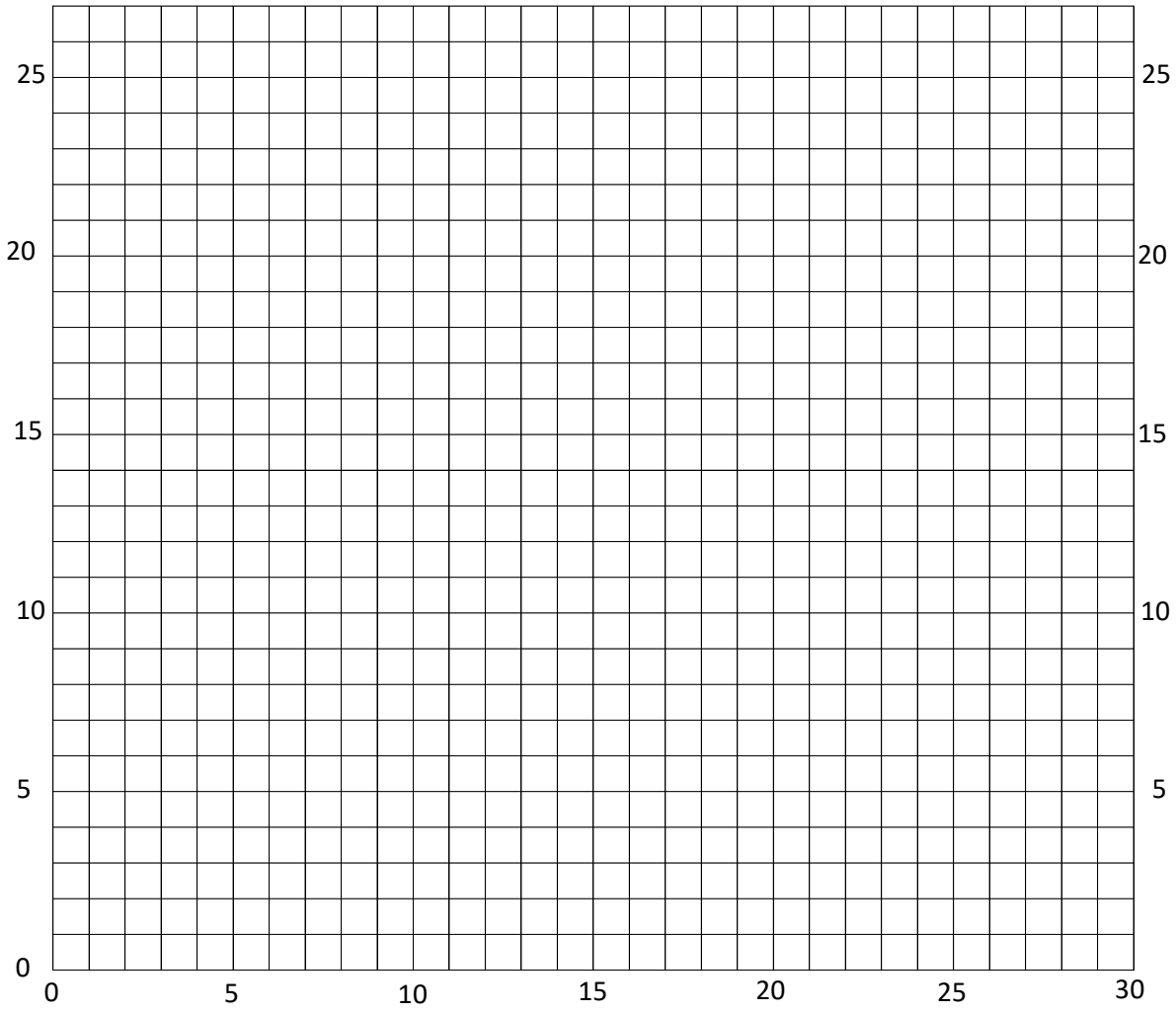
Puzzles created or adapted by Douglas Buchanan

FIND THE VALUES

The letters A, B, C, D, E can have one of the values 1, 2, 3, 4, 5.

From the expressions work out the value each letter has.

1	2	3	4	5
A + B = 5	B ÷ D = B	E + A + D = 6	D^2 = B	B – A = E
D + E = 9	A + D + E = 7	C ÷ A = A	E – A = B	C > D
E – 3 = B	C - D = E	B x E = 15	C > 2	C x D = 6
				A > D



Shape A (9,13) (9,19) (10,21) (11,21) (1,23) (1,21) (2,21) (30,25) (29,25) (27,25) (27,23) (26,23) (26,25) (25,25) (25,23) (24,23) (24,25) (23,25) (23,23) (22,23) (22,25) (21,25) (21,22) (22,20) (22,13) (20,13) (20,15) (18,15) (18,13) (13,13) (13,15) (11,15) (11,13) (9,13)

Shape B (5,21) (7,21) (7,16) (5,16) (5,21)

Shape C (5,8) (5,13) (7,13) (7,8) (5,8)

Shape D (26,20) (27,18) (27,16) (24,16) (24,18) (25,20) (26,20)

Shape E (27,5) (23,5) (23,10) (23,10) (24,12) (26,12) (27,10) (27,5)

Shape F (13,3) (13,9) (15,11) (16,11) (18,9) (18,3)

DRAWING USING CO-ORDINATES

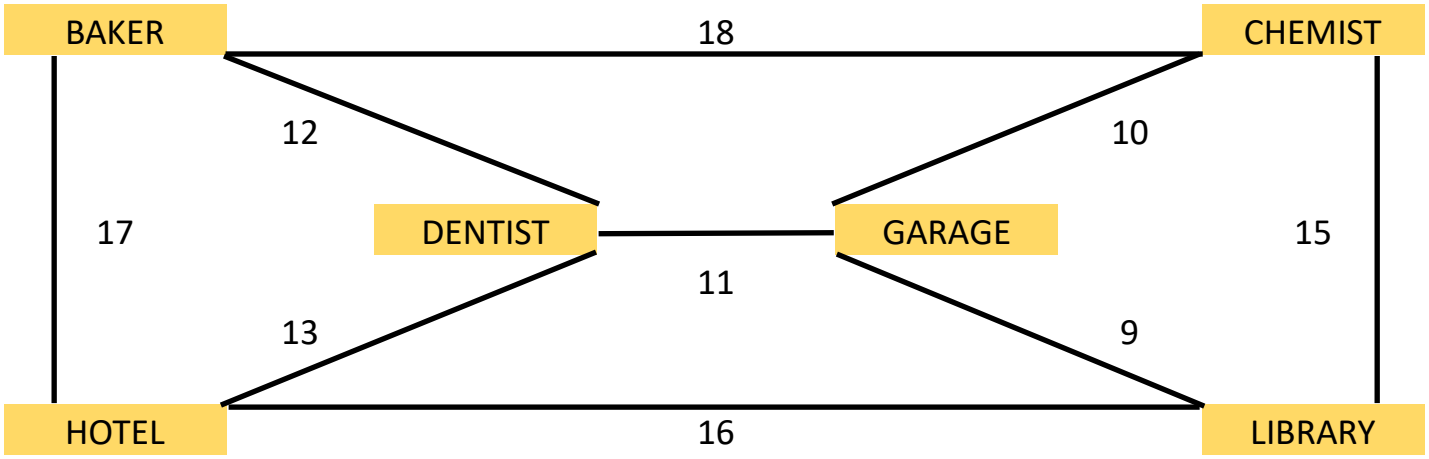
Using the co-ordinates draw the six shapes.

"Remember - in through the door before going up the stairs!"

CYCLING CURLY

Curly enjoys cycling routes.

Work out where the cyclist has gone on each route. Each place is only passed once.



	Route							km
Trip 1	B to L	**B**			**L**			**37**
Trip 2	H to G	**H**				**G**		**59**
Trip 3	G to D	**G**				**D**		**54**
Trip 4	D to H	**D**					**H**	**62**
Trip 5	L to C	**L**					**C**	**64**

Trip 5 only: Curly goes past one place twice

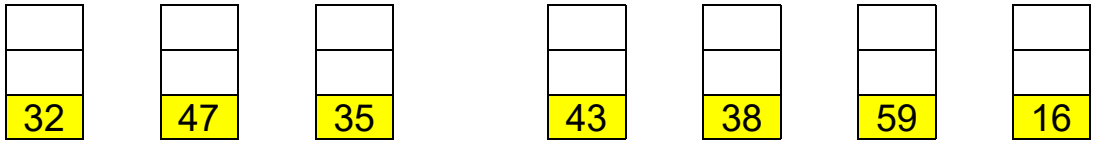
MULTIPLICATION — do not use a calculator

1. What **TWO** numbers between **10 and 20** make **221**?
2. What **TWO** numbers between **10 and 30** make **437**?
3. What **TWO** numbers between **10 and 40** make **1209**?
4. What **THREE** numbers between **10 and 20** make **2717**?

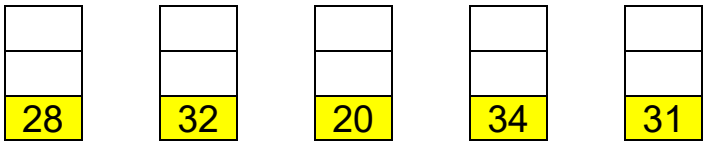
ADDING PAIRS

From the list of numbers find pairs which add up to the totals as shown

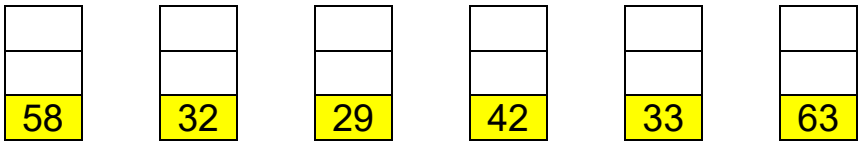
15 21 24 28 10 14 19 29 33 35



11 12 20 21 24 26 5 10 11 14 24 28 29 35



5 7 8 11 12 15 20 21 22 24



10 11 14 17 18 19 22 24 25 28 34 35

FILL IT IN!

Place the list of numbers on the right hand-side into the grid.

			2					14	66	299	1649
			9					18	81	485	6283
			9					19	87	546	8219
								28	88	691	9794
								31	93	736	
								49	99	844	
								55	126	868	
								65	142	894	

COUNTING DOWN!

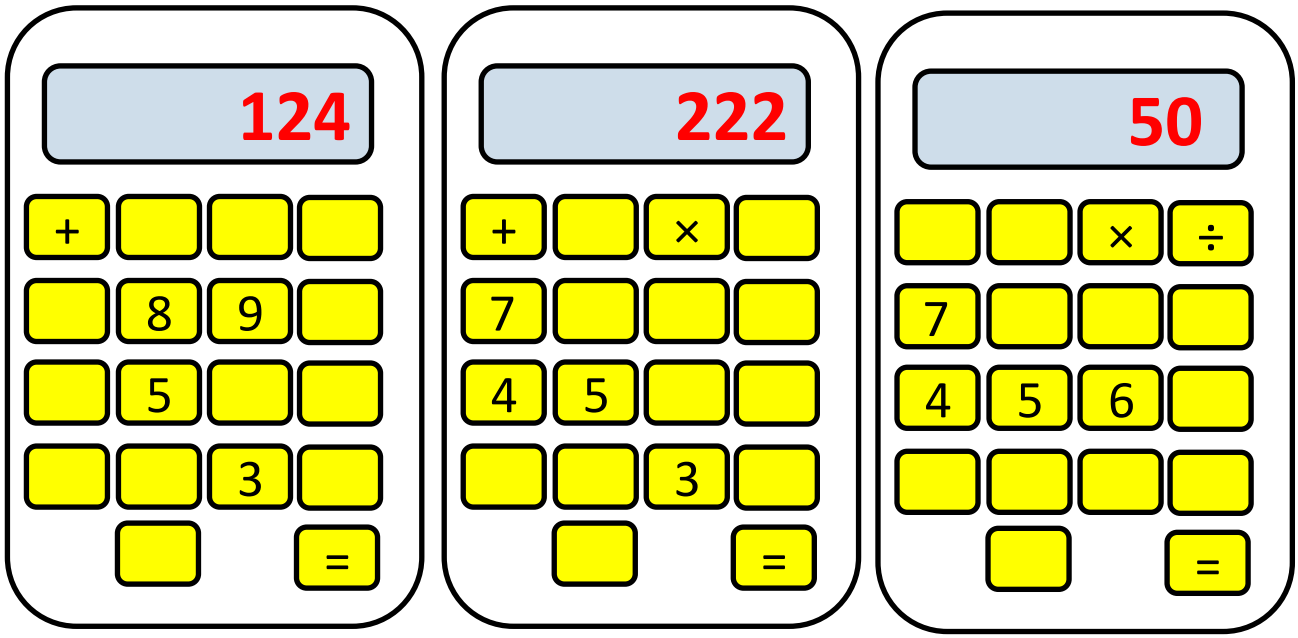
Make the total on the left - you do not have to use all the numbers.

You can only use the operations addition, multiplication, subtraction and division.

	25	6	2	6	4	9	199
Ans:							
	100	8	4	2	1	3	276
Ans:							
	25	9	2	5	2	6	262
Ans:							
	25	4	1	8	8	1	420
Ans:							
	100	2	7	9	4	8	275
Ans:							

BROKEN CALCULATORS

You have to use all the available keys, and only ONCE, to make the total



NUMBER BOGGLE

Moving from one square to another either horizontally, vertically or diagonally try and make the target value by adding and / or subtraction.

There are many combinations. Can you find them all?

Example 1: 8 + 5 - 2 = 11 Example 2: 7 + 6 + 3 + 3 = 19

11	8	7	19
2	5	8	4
3	19	3	19
2	7	6	3

15	9	4	12
10	7	5	5
6	13	8	15
6	6	7	4

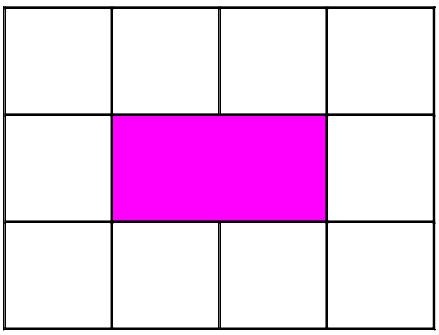
15	1	6	17
4	6	4	9
6	10	5	15
10	3	5	10

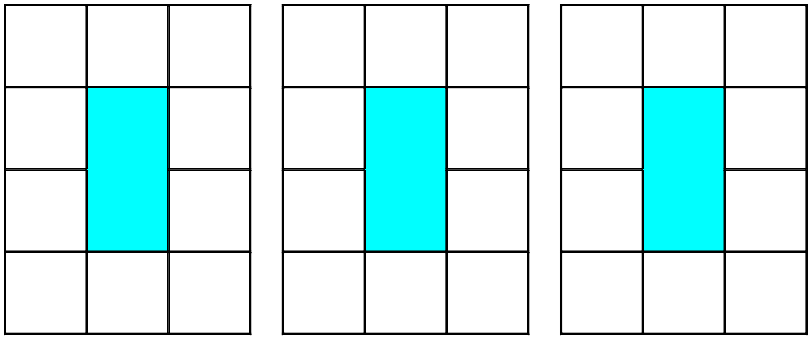
TILE PUZZLES

In the first puzzle place the 5 tiles around the shaded rectangle so that the numbers on each side add up to 10.

In the second puzzle place the fifteen tiles in the grids so where the tiles touch then the numbers on the tiles match

You may like to make your own tiles to make the task easier





5	1	1	0	4	0
4	3	3	3		

0	1	1	2	2	2
0	2	0	0	1	1
1	4	4	3	3	3
1	3	4	0	0	3
2	3	4	2	4	4

MAKE 24

Using ALL four numbers write a number sentence where the result is 24.

You can only use the simple operations addition, multiplication, subtraction and division.

15	10	3	7	
5	3	7	15	
3	3	15	15	
4	3	12	6	
14	10	3	3	

ORDERING CARDS

By reading through the instructions put the numbers in the correct order. Using playing cards or numbered cards will make it easier to solve. *None of the numbers are in their actual positions.*

1 cannot be the first card, 2 cannot be the second card and so on.

A: Cards 1 2 3 4 5

- The odd numbers are next to each other
- Card 5 is a multiple of Card 1
- The 1 is to the left of 3

B: Cards 1 2 3 4 5 6

- Card 1 subtract Card 4 equals Card 6
- The 2 is two places from the 3 and the 4
- The 5 is 3 places away from the 4

C: Cards 1 2 3 4 5 6 7

- The 7 is 3 places away from the 2 and the 6
- Card 3 and Card 5 equal 3 when multiples together
- The 5 is to the left of 4

D: Cards 1 2 3 4 5 6 7 8

- The 4 is six places away from the 3
- The 5 is six places away from the 8
- The 1 is between the 6 and the 7
- Card 3 multiplied by Card 7 equals 6

E: Cards 1 2 3 4 5 6 7 8 9

- The middle 3 cards are 1, 2 and 6 – not in order
- Card 1 multiplied by Card 3 equals 12
- Card 2 added to Card 9 equals 14
- 8 is to the right, but next to, of 4
- Card 7 is 6 more than Card 4

ADD UP TO SEVEN

Find consecutive numbers, horizontally, vertically and diagonally

which add up to NINE

1	3	1	1	2	2	3	2	2	3	2	1	3	3
2	1	2	2	1	2	3	2	1	3	3	2	3	2
3	2	2	3	1	1	3	1	3	3	2	1	1	2
3	2	3	1	1	3	1	2	3	1	3	2	3	1
1	1	1	2	2	3	2	2	1	1	1	2	3	3
2	2	1	3	2	1	1	3	1	3	1	3	2	2
1	1	3	1	1	2	1	1	2	1	1	3	3	2
1	3	1	1	2	3	1	3	2	3	2	2	1	3
2	2	1	1	1	1	1	2	3	1	3	1	2	2
3	3	3	2	3	1	1	2	2	3	2	2	3	1
1	2	3	1	3	1	2	2	3	3	2	2	1	3

SOLUTIONS

COUNTING DOWN and MAKE 24: there are many combinations. Ask somebody to check them or use a calculator. **FIND THE VALUES**: 1. A 3 B 2 C 1 D 4 E 5 2. A 2 B 3 C 5 D 1 E 4 3 A 2 B 5 C 4 D 1 E 3 4. A 1 B 4 C 3 D 2 E 5 5. A 4 B 5 C 3 D 2 E 1 **CYCLING CURLY:** BCGL HBCLG GCLHD GLCBH LHDGLC **MULTIPLICATION:** 13 17; 19 23; 31 39; 11 13 19 **ADDING PAIRS**: 24 28 15 21; 14 29 35 19 33 10; 12 20 21 26 24 11; 14 29 28 10 24 35 11 5; 7 21 24 8 5 15 12 22 11 20; 34 24 18 14 19 10 17 25 22 11 35 28 **BROKEN CALCULATORS:** 89 + 35; 43 x 5 + 7; 75 x 4 – 6 **TILE PUZZLES:**

4	0	3	3
1			3
5	1	0	4

0	0	0		1	2	2		4	4	4
0		3		1		2		4		2
4		3		1		2		1		2
4	3	3		1	3	3		1	0	0

There could be other combinations.

ORDERING CARDS: Five 2 1 5 3 4 Six 6 3 5 2 1 4 Seven 2 5 1 7 3 4 6 Eight 4 8 2 6 1 7 3 5 Nine 3 9 4 2 6 1 8 7 5