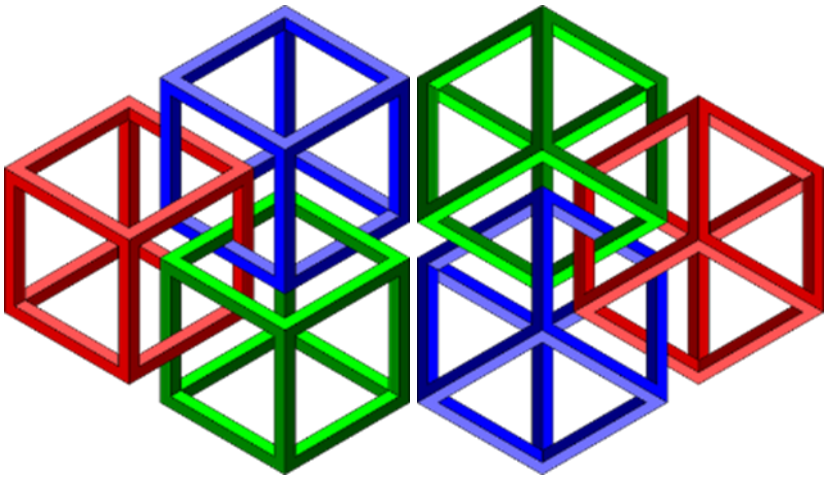
MATHS PUZZLE BOOK

VOLUME SIX

= 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

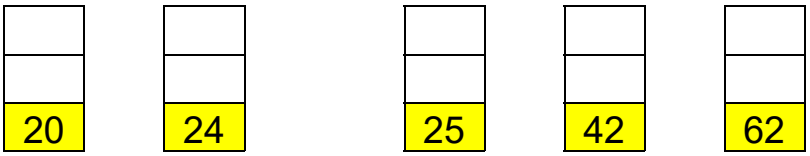
MAKE 24

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. You cannot use the numbers more than once

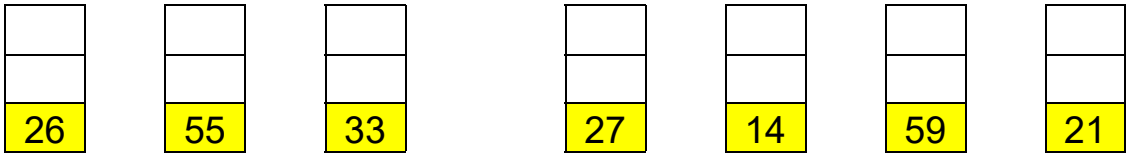
6	9	7	2	
10	11	5	2	
9	1	11	5	
2	3	4	6	
4	2	5	11	

ADDING PAIRS

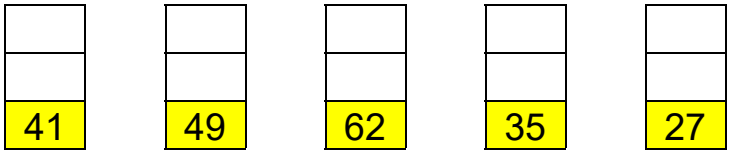
From the list of numbers find pairs which add up to the totals as shown



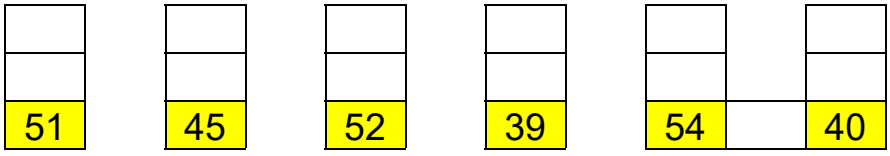
7 9 11 17 5 9 20 27 33 35



8 12 18 21 23 32 5 6 8 9 15 19 29 30



11 12 15 16 17 19 29 30 32 33



9 15 19 21 22 24 25 26 28 29 30 33

FIND THE NUMBERS

In the grid you will find all the numbers from 1 to 20. Can you see them all?

B	X	S	E	V	E	N	T	E	E	N	Q	A	O	S	B	H	W
E	S	F	S	B	T	I	R	B	R	S	I	X	E	Q	L	O	S
Q	I	I	O	M	W	T	I	P	X	H	A	O	Y	Q	C	J	R
C	H	G	X	U	O	Z	K	D	T	W	E	N	T	Y	T	F	M
P	K	T	H	T	R	E	I	G	H	T	E	E	N	Y	H	I	W
Z	T	S	H	T	E	T	B	Z	T	B	W	Y	Z	S	I	V	V
E	O	N	E	R	E	E	E	K	E	W	N	M	J	E	R	E	R
H	R	F	P	R	E	C	N	E	N	F	E	H	F	V	T	R	N
N	I	N	E	T	E	E	N	J	N	O	O	L	C	E	E	L	I
E	F	Z	X	L	X	M	I	T	L	U	T	J	V	N	E	G	N
I	V	T	F	I	F	T	E	E	N	R	E	K	C	E	N	I	E
G	Q	M	B	Z	C	Z	J	S	E	L	E	V	E	N	F	I	Y

WHAT NEXT?

Look at the pattern and try and work out what comes next

If you had 1 2 3 4 you would know the next number would be 5

A. 5 11 17 23 ??

B. 4 8 13 19 ??

C. 24 21 18 15 ??

D. 1p 2p 5p 10p ??

E. 2 10 18 26 ??

F. 6 9 14 21 ??

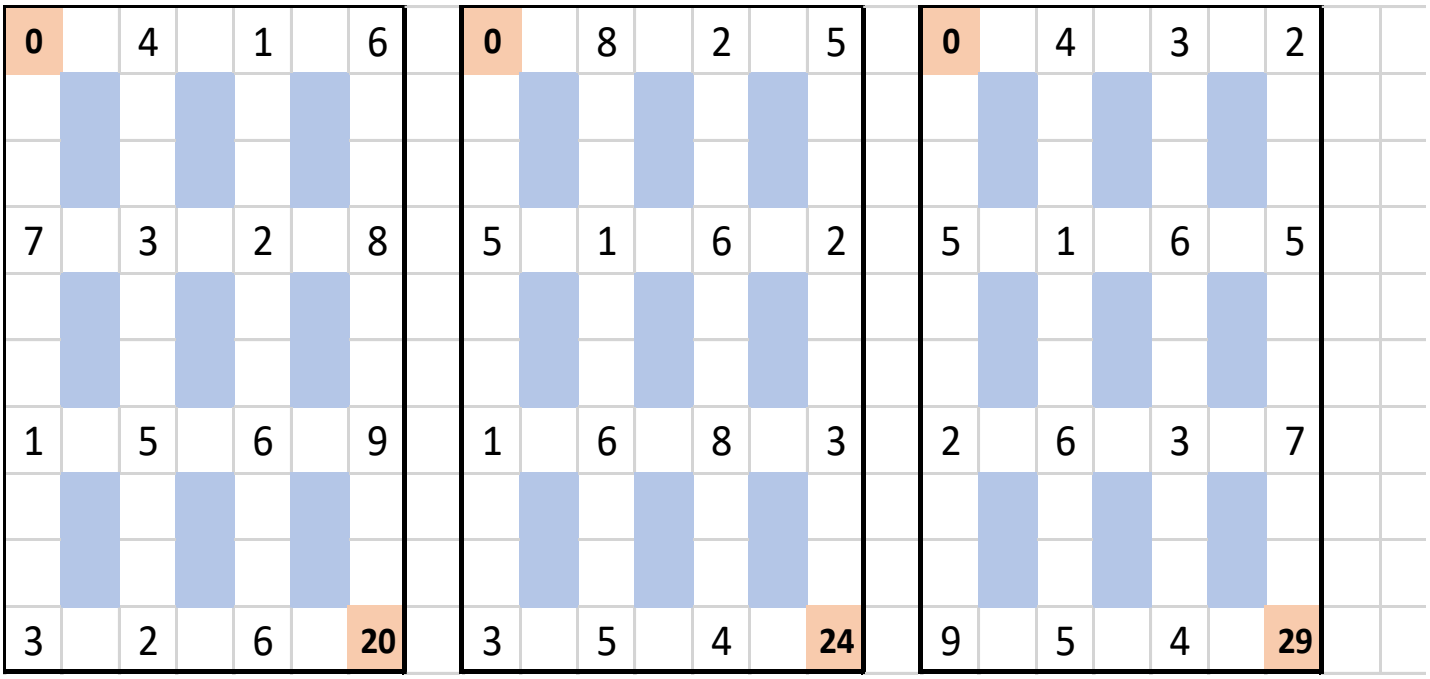
G. 19 17 14 10 ??

H. B D F H ??

NUMBER MAZES

Start at 0 and travel around the maze adding the numbers

and reaching the target square with the same value. You cannot go on the same path twice



THE GREENGROCER

My greengrocer has a funny way of charging for the fruit and vegetables. He looks at his Table and looks at the values of the letters and adds them up.

For example a PEA would cost: 55p + 25p + 5p = 85p

Find the values of the following:

A	B	C	D	E	F	G	H	I	J	K	L	M
5p	10p	15p	20p	25p	30p	35p	40p	45p	50p	55p	60p	65p
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
65p	60p	55p	50p	45p	40p	35p	30p	25p	20p	15p	10p	5p

BEAN	APPLE
CARROT	SPINACH
CAULIFLOWER	STRAWBERRY

CRACK THE CODE

a = 1, b = 2, c = 3, ……. y = 25, z = 26. Replace the numbers with letters.

Rearrange the words to create maths facts

19 9 4 5 19 16 5 14 20 1 7 15 14	7 9 22 5	8 1 19	1
4 5 7 18 5 5 19 18 9 7 8 20	1 14 7 12 5 1	13 1 11 5	14 1 14 5 20 25
19 9 24 1 14 4	5 4 7 5 19 7 1 3 5 19	20 23 5 12 22 5 1	8 1 19 3 21 2 15 9 4
5 22 5 14 1 16 18 9 13 5	20 23 15 14 21 13 2 5 18 15 14 12 25	20 8 5 23 8 9 3 8 9 19	9 19 14 21 13 2 5 18
12 5 20 20 5 18 19 “20 23 5 12 22 5 16 12 21 19	16 12 21 19 1 18 5 20 23 15”	1 14 4 9 14 20 8 5 18 5	15 14 5” “5 12 5 22 5 14 20 8 9 48 20 5 5 14

ADD UP TO SEVEN

Find consecutive numbers, horizontally, vertically and diagonally which add up to SEVEN

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

FILL IT IN

Put the digits in the squares to make the number sentence correct

Puzzle 1

☐ + ☐ + ☐ x ☐ = 36

2 5 6 7

Puzzle 2

☐ - ☐ + ☐ x ☐ = 15

2 3 4 7

Puzzle 3

☐ - ☐ + ☐ x ☐ - ☐ x ☐ = 240

2 3 4 5 6 9

Puzzle 4

☐ - ☐ x ☐ + ☐ - ☐ x ☐ = 15

2 3 4 5 8 9

Puzzle 5

☐ ÷ ☐ x ☐ + ☐ ÷ ☐ x ☐ = 28

2 3 5 6 7 9

HAPPY FARMERS

The four happy farmers are back and they were using plastic alien animals to create their riddles for the others. The animals were the pentagula with 5 legs, the hexamum with 6 legs and the octopul with 8 legs Try and work out how many animals of each species they have

Farmer Tractor said: "On my farm I have pentagulas and hexamums. I can see 5 heads and 28 legs. How many pentaguls and hexamums do I have?"

Farmer Plough said: "I have pentagulas and octopuls on my farm and I can see 7 heads and 41 legs. How many pentagulas and octopuls do I have?"

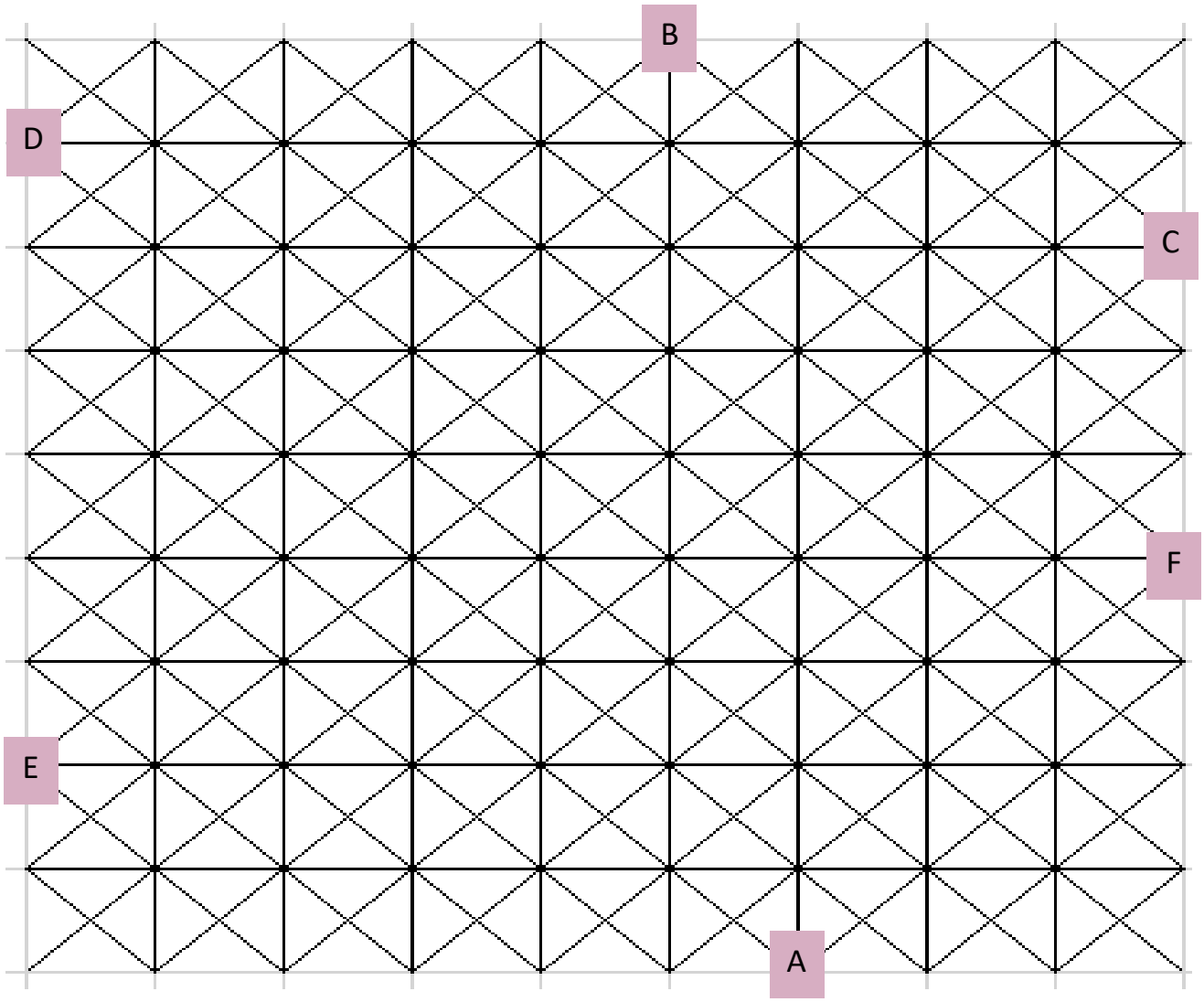
Farmer Baler said: "On my farm I have pentagulas and hexamums and octopuls. I can see 9 heads and 55 legs. How many pentagulas and hexamums and octopuls do I have?"

Farmer Harrow said: "On my house I also have pentagulas and hexamums and octopuls. I saw 12 heads and 70 legs. How many pentagulas and hexamums and octopuls did I see?"

SILLY SPIDER'S ROUTES

Silly Spider walked on a net of wires and started at different points.

Which dot did Silly Spider reach having followed the routes below



START A North 2 corners; West 4 corners; North-East 3 corners; East 2 corners; North 2 corners; West 6 corners; North-West 1 corner

START B South-West 2 corners; South 2 corners; South-East 2 corners; South-West 2 corners; North 3 corners; West 1 corner; South-West 2 corners

START C West 4 corners; South-West 3 corners; East 2 corners; South-East 4 corners; West 7 corners; North 2 corner; West 1 corner

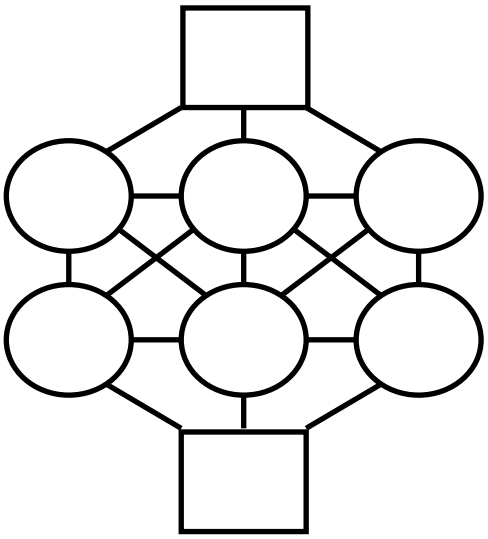
START E North 4 corners; East 6 corners; South-East 2 corners; West 2 corners; South-East 2 corners; North-East 1 corner; North 1 corner

START D South 1 corner; South-East 7 corners; North-East 2 corners; West 2 corners; South-West 2 corners; North-West 4 corners; North 4 corners; East 2 corners; North-East 1 corner; South-East 4 corners; North-East 1 corner; West 4 corners; North 3 corners

1 to 8

Place the digits 1 to 8 in the grid. Consecutive numbers cannot be connected.

In other words 6 cannot be connected to 5 and 7 and so on.



My pets

Last week I weighed my pets and thought I would create a riddle for you

The rabbit and cat weigh 8 kilograms altogether.
The dog and rabbit weigh 13 kilograms altogether
The dog and cat weigh 15 kilograms altogether
What is the total weight of all three pets?

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	7	5	3	140
Ans:							
	50	1	6	2	4	5	451
Ans:							
	100	8	2	7	4	6	168
Ans:							
	75	1	2	5	3	9	216
Ans:							
	50	8	2	8	1	8	120
Ans:							

SOLUTIONS

COUNTING DOWN AND MAKE 24: there are many combinations. Ask somebody to check them or use a calculator **ADDING PAIRS:** 9 11, 17 7; 20 5; 33 9, 35 27; 18 8, 32 23, 12 21; 19 8, 5 9, 29 30, 15 6; 11 30, 32 17, 33 29, 16 19, 12 15; 29 22, 21 24, 33 19, 30 9, 26 28, 15 25 **WHAT NEXT?** 29 26 12 20p 34 30 5 J **THE GREENGROCER:** bean 105 apple 200 carrot 205 spinach 265 cauliflower 395 strawberry 275 **CRACK THE CODE:** A pentagon has five sides; Ninety degrees make a right angle; A cuboid has six faces and twelve edges; There are thirteen letters in “eleven plus two” and “twelve plus one”; Two is the only even number which is a prime number **FILL IT IN:** (some digits can be swopped eg 2 + 7 or 7 +2) P1: 5672 P2: 7423 P3: 942356 P4: 854293 P5: 639257 **HAPPY FARMERS:** Tractor: 2p 3h Plough: 5p 2o Baler: 3p 4h 2o Harrow: 6p 4h 2o **SILLY SPIDER:** A to D; B to E; C to E; E to F; D to B **1 to 8:** Top row 7 second row 314 third row 586 bottom row 2 **MY PETS:** 18kg