Crossnumbers

Quarterly

Issue  October 2016

Introduction

Welcome to the launch issue of Crossnumbers Quarterly (CQ) which comes to you free of charge. If there is sufficient interest in this then it is intended that there will be four issues a year for a fee of about £20. To register your interest see the contact details following the competition page.

There are a number of different types of crossnumber puzzle. You will no doubt have seen and tried many in newspapers and magazines. Sudoku, Killer Sudoku, Kakuro and Ken Ken are now very popular. However there are other types of crossnumber puzzle like those that appear in The Listener Crossword series in The Times every quarter and in The Magpie every month. This publication is going to address these types of puzzles.

So what are these puzzles like? They are like a crossword in style with clues. These clues can be definition type; square, prime etc where you are given information about the number that has to be entered or are letter/number assignment whereby a set of letters has been replaced by a set of numbers and you have to work out which letter represents which number.

This publication aims to expand the range and availability of such puzzles, enabling existing solvers to develop their skills. Hopefully it will also encourage novice solvers and setters to enter the numerical arena and progress to tackling Listener and Magpie offerings.

Assuming sufficient interest the aim is to include about 8 puzzles per issue, ranging in difficulty and type. There will be competitions, but for honour rather than glory. Prizes will either be free subscription to Crossnumbers Quarterly or a modest book token or book. Results and solutions will be given in the subsequent issue. Details for submitting entries and responding with any comments regarding the contents are given on the competition page. Any feedback resulting from these comments will be included in the subsequent CQ.

News

The 3 Listener and 9 Magpie puzzles published so far in 2016 have been set by 8 different setters. Last year the 16 puzzles were set by 12 different setters which was a record and can only be equalled this year.

The majority of the puzzles are set by the well-known Arden, Brimstone, Elap, Googly, Hedgehog, Oyler, Nod and Zag all of whom have their own style and reputation. New blood is always welcome and last year Amos, Cagey and Chalicea featured in The Magpie. So far Amos is the only one to have had another published but we look forward to more from them.

This publication welcomes submissions from any setter. We particularly wish to encourage novice setters by providing a test track for them to hone their skills. The experience of successful publication and solver response in CQ will facilitate any future submission to an outlet such as The Listener or The Magpie. It is a lot easier to get something published if you're already established. Note that our policy is that setters retain copyright to any of their material that is submitted or published.

Let's go Living in the Past or a Bit of History.

The Listener published its first numerical on the 27th of April 1932 which was entitled 'Mathematical' and set by Afrit. To this day they are still referred to as 'mathematicals'. A further three mathematicals appeared that year all set by Afrit but this time the titles were 'Cross-number', 'Cross-number II' and, yes you've guessed it, 'Cross-number III'. Many more followed.

In 1935 the puzzle 'Little Pigley Farm' first appeared in The Strand magazine and has since reappeared in numerous other publications. This classic puzzle is a narrative type puzzle in which solvers have to work out the age of the farmer's mother-in-law.

Many Listener puzzles in the early days required university level number theory to crack them which is not the case nowadays where the level expected is GCSE standard.

The 60s and 70s were the Rhombus era and the void created following his death was filled by Klan and Piccadilly who introduced the letter/number assignment type puzzles.

The Listener magazine folded in January 1991 with the last puzzle being a mathematical by Klan that also announced that he'd passed away. However the crossword found a home in The Times a few months later and so normal service was resumed.

In September 1999 the mathematicals had their first competition when the then editor Mike Rich started up Tough Crosswords, a subscription only monthly magazine which had one mathematical per issue. Sadly Mike died in 2002 however The Magpie, in the form of Mark Goodliffe and Simon Anthony, picked up the baton and it is still going strong. As a result the genre has developed at a much faster rate.

In future issues it is intended to look at specific eras and the setters and type of puzzles that were around at that time.

This Issue's Puzzles

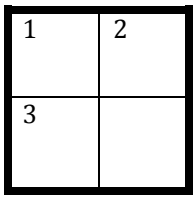
Ten puzzles by a variety of setters: Arden, Elap, John Gowland, Moog, Nod, Oyler and Zag. They include a mix of themed definition, letter/number assignment, narrative and a pentomino based puzzle. Grids range from 4x4 to 9x9 with attendant increase in difficulty. Hopefully this gives you an entertaining and challenging selection of puzzles to solve. Relevant tables of numbers are included. Please note that setters reserve all rights to their individual copyright and no part of the material protected by this copyright may be reproduced or utilised in any form without the written permission of the copyright owner.

CQ will only thrive by providing what solvers want so please let us have any comments regarding the puzzles, selection and difficulty. Not only is that helpful to us for improving the content but it also provides important feedback to setters.

So what sort of numerical puzzles do you like? What sort don't you like? Are there any types of puzzle from a bygone age that you'd like to see recreated? For example Piccadilly and the each row and column is in a different number base type or maybe Rhombus and the pandigital sets type. How do you solve the puzzles? Do you like/dislike a dénouement? We want to hear from you!

Our website favicon

It is the solution to the following puzzle.



	Across		Down
1	cube [2]	**1**	triangular [2]
3	square [2]	**2**	prime [2]

The digits in the solution if read clockwise from the top left-hand cell provide a tenuous link to one of the editors.

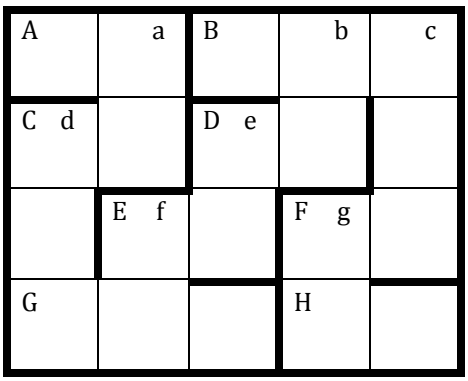
Alastair Cuthbertson : Oyler

Doug Stanford : Zag

2016 by Oyler

Each entry is a factor of the number 2016, the prime factorisation of which is $2^5 \times 3^2 \times 7$.

No entry starts with zero and all are distinct. Factors and multiples are non-trivial.



Across

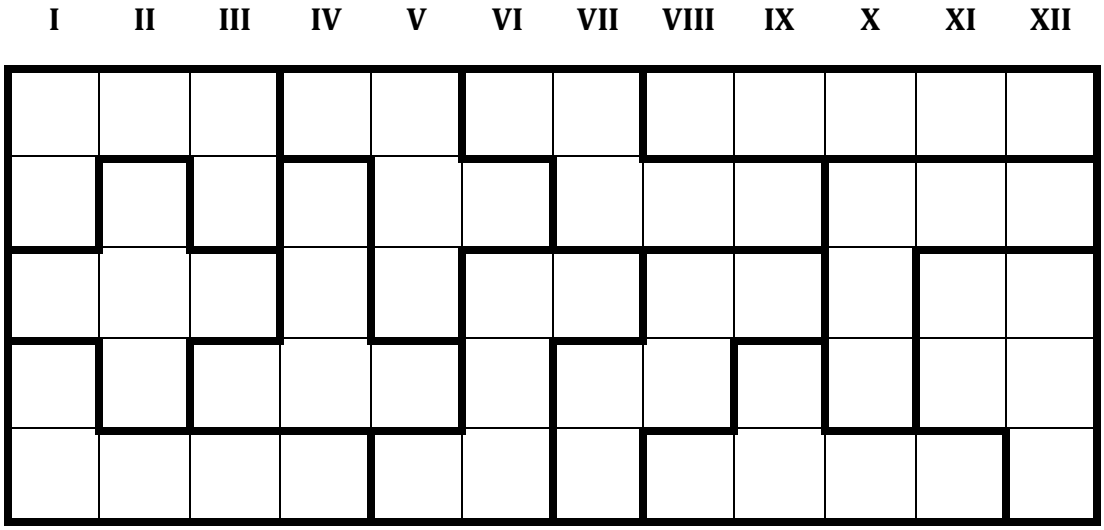
A factor of D [2]
B factor of c [3]
C multiple of g [2]
D square [2]
E factor of a [2]
F factor of E [2]
G twice a square [3]
H factor of E [2]

Down

a multiple of H [2]
b square [2]
c multiple of B [3]
d palindrome [3]
e twice a square [2]
f multiple of C [2]
g factor of d [2]

Pentomino Primes by John Gowland

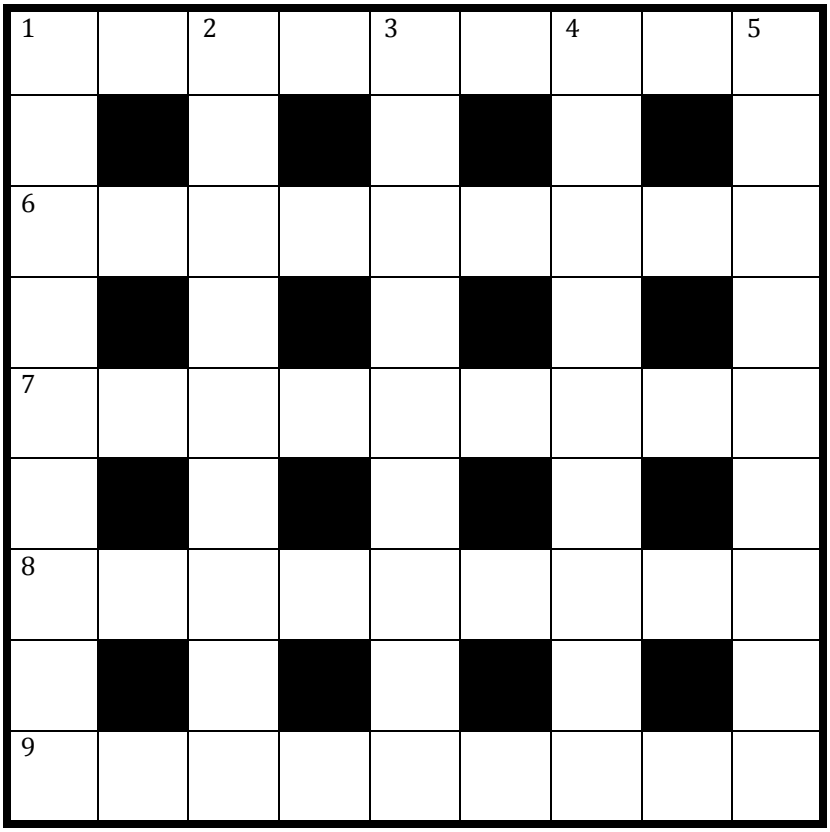
Each pentomino contains the digits 1, 2, 3, 4 and 5. The unknowns are prime numbers less than 100 and are given in descending order in the clues.



I 4ABC
II 2ADE
III FEC
IV GGE
V HJK
VI 2JLB
VII MBB
VIII 2GNB
IX FPK
X PQC
XI 2DNQ
XII 2DNN

Cryptocubes by Elap

Each entry is a perfect cube and the clues are digit strings. Within each clue the same letter represents the same digit - however it is not necessarily the same digit in a different clue. No entry starts with zero and all are distinct. The letter values can be deduced with minimal trial and error.



Across

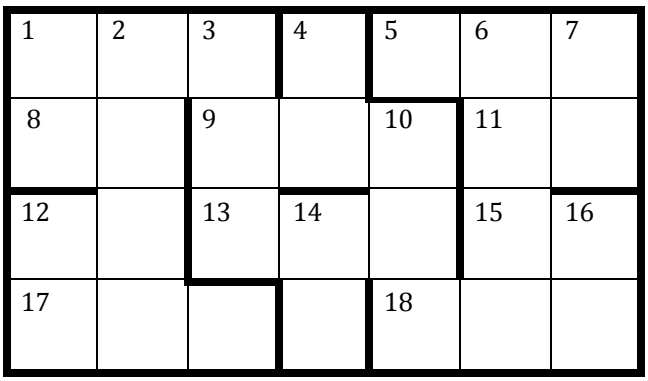
1 EAT^3 = SCARIFIES
6 PUD^3 = SIDESALAD
7 TOT^3 = DADMUMACT
8 LAC^3 = COLOURFUL
9 EEL^3 = SPLATTERS

Down

1 MAN^3 = CONFERRED
2 NIL^3 = IAMLITTLE
3 GET^3 = DEBUGGING
4 PMS^3 = MINISTERS
5 PEP^3 = TRICKSTER

Missing Digits II by Oyler

Each digit that appears has a frequency equal to itself. All entries are distinct and multiples are non-trivial.



Across

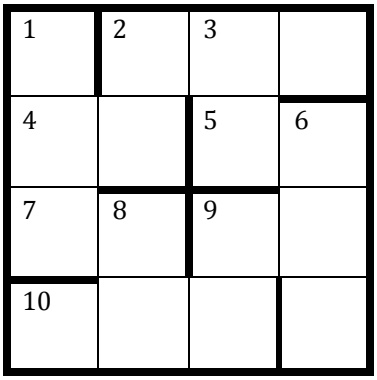
1 sum of the entered digits [3]
5 twice a prime [3]
8 palindrome [2]
9 multiple of a square [3]
11 palindrome [2]
12 palindrome [2]
13 its digit product is a square [3]
15 twice a square [2]
17 jumble of another entry [3]
18 palindrome [3]

Down

1 square [2]
2 prime [4]
3 twice a prime [3]
4 palindrome [2]
6 palindrome [4]
7 15ac – prime [2]
10 prime [3]
12 square [2]
14 square [2]
16 consecutive digits [2]

Partners in Prime by Zag

Symmetrically opposite pairs of answers add to a prime number.



Across

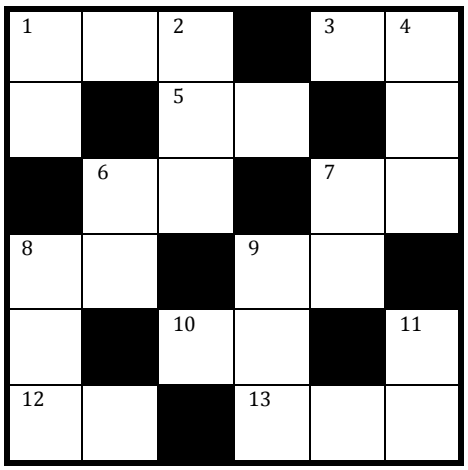
2 reverse(10ac) [3]
4 sum(entered digits) – 7ac [2]
5 greater than 9ac [2]
7 see 4ac [2]
9 see 5ac [2]
10 odd [3]

Down

1 square [3]
2 square [2]
3 square [2]
6 square [3]
8 square [2]
9 square [2]

The Wheels on the Bus by Moog

Muffit and Duffit operate a daily coach service from Aberdeen to Edinburgh which has a single stop, in order, at Brechin, Crieff and Dundee before reaching its destination. The coach can hold a maximum of 60 passengers. All entries are distinct and none start with zero.



Across

1 square of 1dn [3]

3 number who got on at Brechin [2]

5 total number of passengers carried [2]

6 fare from Aberdeen to Edinburgh in pounds [2]

7 square of the number who got off at Brechin [2]

8 fare from Dundee to Edinburgh in pounds [2]

9 cube of the number who got on at Crieff [2]

10 number who arrived in Edinburgh [2]

12 factor of 3ac [2]

13 square of 11dn [3]

Down

1 number of passengers who got on at Aberdeen [2]

2 twenty times the driver's age in years [3]

4 square of 3ac [3]

6 less than 3ac [2]

7 number who got off at Crieff [2]

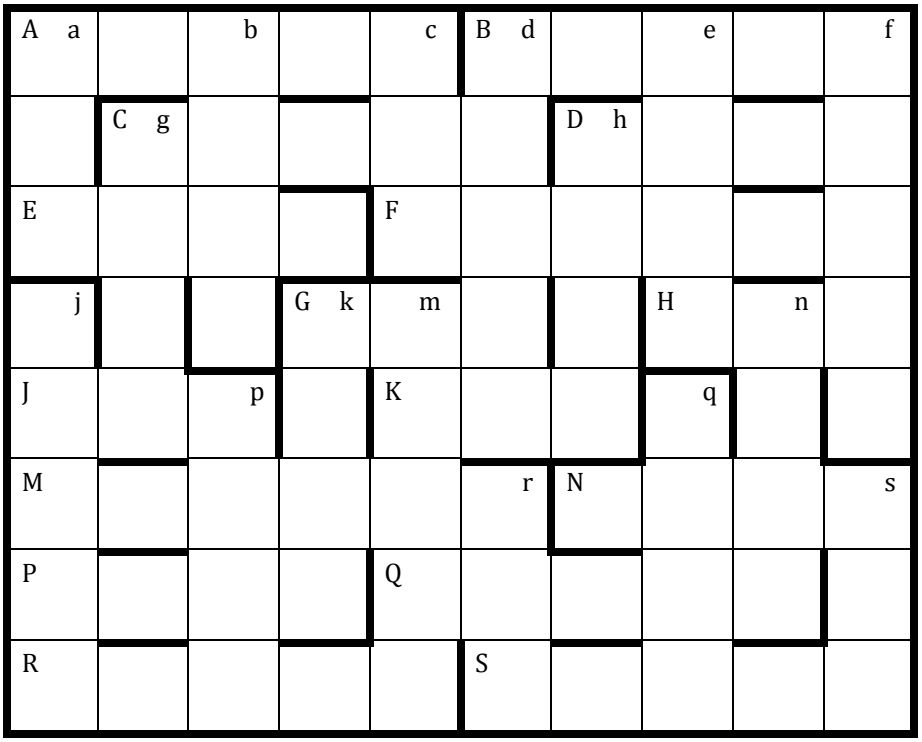
8 square of 8ac [3]

9 cube of the number who got off at Dundee [3]

11 number who got on at Dundee [2]

Prime by Nod

Capital and lower case letters label across and down entries respectively. There are no leading zeros and entries are distinct. The digits in the final grid can be converted to letters with every 2 digits in normal reading order giving 1 letter using modulus 26 (e.g. 557920 = CAT). These letters spell out part of a quotation and the name of the character to whom these words are attributed should be written below the grid (4, 6).



A = 353√r + 239√p = 521√r + 181√p

B = 67H + 41J

C = 263√h + 317J = 113a + 467√h

D = 11H+2a

F = 17A + 181n

M = 359E + 599H = 479s+251k

Q = 167G + 113√h = 53√r + 383s

R = 5e + 3h = 199√a + 2N

S = 5h + 79√r

d = 7c + 2P

f = 13J + 277c

g = 19√a + 2b

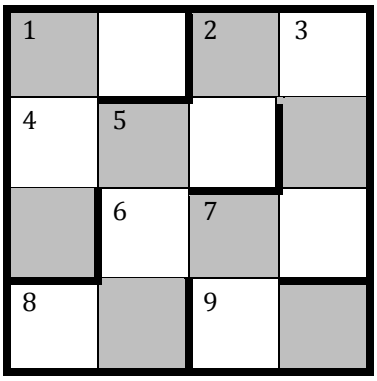
j = 641√a + 229c

m = 127√K + 5q

q = 13√h + 7r

Chessboard Challenge by Zag

No digit can appear in both shaded and unshaded squares. Functions of a number such as multiple or divisor are non-trivial producing a different result to the number itself. No answer starts with a zero.



Across

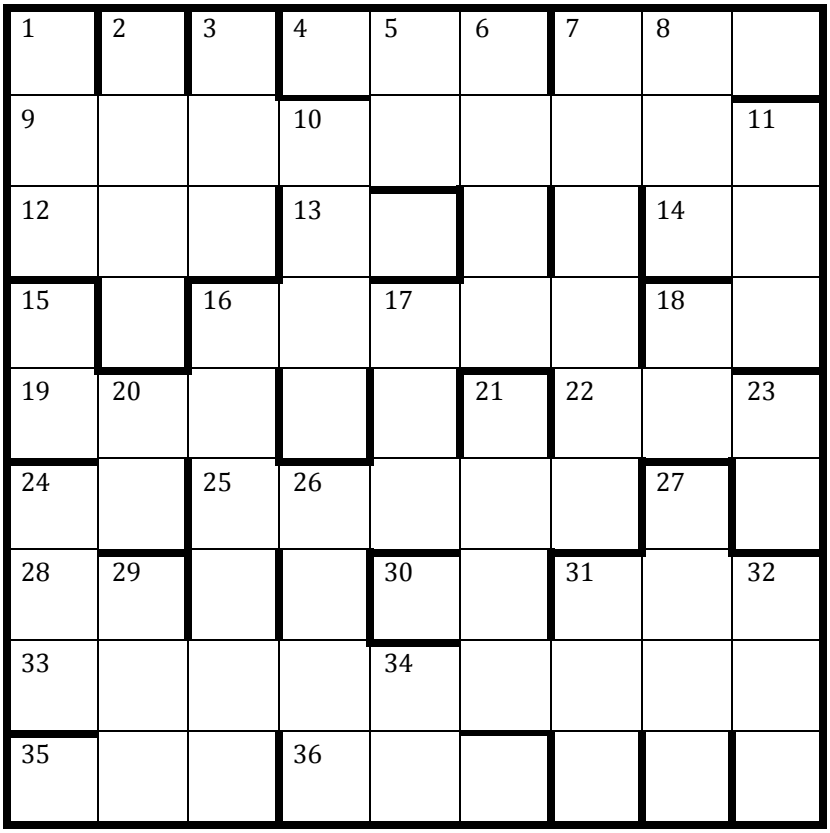
1 sum(entered digits) [2]
2 prime [2]
4 multiple(8ac) [3]
6 divisor(5dn) [3]
8 square [2]
9 divided into 1ac leaves remainder 8ac [2]

Down

1 square – 4ac [3]
2 digital product(6ac) [2]
3 square [3]
5 palindrome [3]
7 multiple(9ac) [2]

_____ ____ or A Particular Takeaway by Arden

Solvers need to discover the puzzle's true title, the absent clues to 9A and 16A, two words of 7 and 5 letters. This must be written below the grid. The letters used in the clues represent different positive integers, all less than 100. There are no leading zeros, all answers are distinct and the normal rules of algebra apply.



B	C	F	H	I	K	N	O	P	S	U	V	W	Y

Across

4 PI – CK [3]
7 BOW/S [3]
9 *see preamble* [9]
12 NO + W [3]
13 SH [2]
14 I – F [2]
16 *see preamble* [5]
18 HI + P [2]
19 IN [3]
22 IS [3]
24 I + F [2]
25 PUNCH [5]
28 HOO – P [2]
30 SH + Y [2]
31 H + OBO [3]
33 COUSINS [9]
35 COW/S [3]
36 I + VY [3]

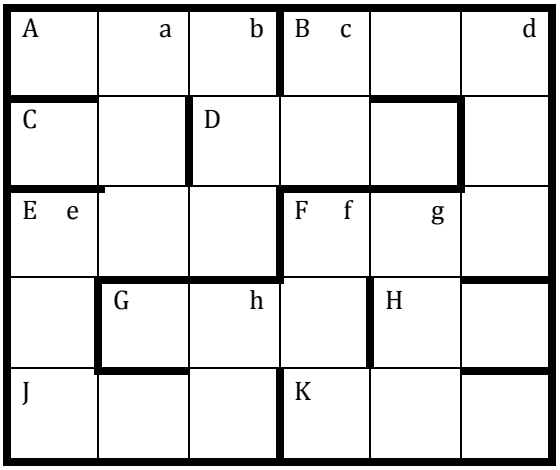
Down

1 IO + N [3]
2 FISH [4]
3 CHOP [3]
5 WH + O [2]
6 COY [4]
7 SWOP [6]
8 K + IP [3]
10 BOOK – SHOP [4]
11 OFF [3]
15 I [2]
16 SCUFF [6]
17 BU – FF [3]
18 OOH [2]
20 OF [2]
21 PUN – CH [4]
23 OF + F [2]
24 HUN [3]
26 INK [4]
27 HOOK [4]
29 HOCK [3]
31 HOO + PS [3]
32 HO + OK [3]
34 O + N [2]

Perplexing Pandigitals by Oyler

In the Clues **S, T** and **P** are three 3-digit numbers that between them contain all of the digits from 1 to 9 inclusive such that **S** is a square number, **T** a triangular number and **P** a prime number. The result **R** of the calculation **S + T – P** is a 3-digit prime number. **X′** denotes the reverse of **X** and **X*** denotes a jumble of the digits of **X**.

There are no zeros in the grid and all the entries are distinct.



	S	**T**	**P**	**R = S + T – P**
I	HH	e	d′	G
II	H(C + c – h)	J	d′	F
III	cc	K	A	f
IV	g′	3E	b – C – c	A*
V	hh	B′	a – cc	D

Competition

This is an opportunity for setters and solvers, established and new, to test their setting skills using the following data. Below are all the solutions to the problem of finding three 3-digit numbers that between them contain all of the digits from 1 to 9 inclusive such that their product is a 9-digit number that again contains all of the digits from 1 to 9 inclusive.

The challenge is to create a puzzle based on around 6 of the sets. How you go about clueing the puzzle is entirely up to you. The 9-digit number can be split up into smaller sets of digits if required. You may choose to have a numbered grid or a lettered grid. **Your submission should include a) a blank diagram with clues, any necessary preamble, author details and separately b) a completed grid together with a full logical solution pathway.**

The sender of the puzzle deemed to be the best by the judges will receive a free year's subscription to Crossnumbers Quarterly and their puzzle published in a future issue.

163	827	945	127386945	413	568	927	217459368
234	561	987	129567438	418	756	923	291675384
237	618	954	139728564	423	581	796	195627348
243	691	875	146923875	428	657	913	256731948
248	751	963	179356824	432	571	869	214357968
251	738	964	178569432	432	597	618	159384672
256	743	891	169475328	438	516	729	164759832
261	538	947	132975846	452	871	936	368495712
261	594	837	129763458	463	581	927	249365781
263	871	945	216473985	472	518	693	169435728
281	547	936	143869752	495	681	723	243719685
291	534	867	134726598	513	872	946	423179856
312	564	897	157843296	531	768	924	376814592
319	572	846	154367928	531	876	942	438176952
324	659	871	185972436	536	841	927	417869352
329	576	841	159372864	567	843	912	435918672
342	671	958	219843756	579	612	843	298715364
364	581	792	167495328	612	743	958	435617928
381	657	942	235798614	639	725	841	389614275
387	641	952	236159784				

Subscribing, Submissions, Contributions or Comments

If you wish to subscribe to CQ please provide your name and email address. You will be contacted in early December confirming the publication will go ahead and requesting payment.

Address for any contact is either oyler@crossnumbersquarterly.com or zag@crossnumbersquarterly.com. Please indicate in the subject line of the email whether the communication refers to a comment, feedback, competition entry or new puzzle That will help us deal with it appropriately. We will try and cover any response in the next issue. New puzzles will receive an acknowledgement and an indication of likely response time. Obviously that will depend on the length of queue and test solver workload.

Recommended Books

The Number File by Adrian Jenkins published by Tarquin.

Recreations in the Theory of Numbers by Albert Beiler published by Dover.

The Penguin Dictionary of Curious and Interesting Numbers by David Wells.

Favicon Solution

1 2	2 7
3 8	1

The digits read clockwise from the top left-hand cell are 2718. If a decimal point is inserted between the 2 and the 7 we get 2.718 which is the start of Euler's number, *e*. One of the editor's has a homophonic pseudonym.

Website

www.crossnumbersquarterly.com

Table of square numbers

1	121	441	961	1681	2601	3721	5041	6561	8281
4	144	484	1024	1764	2704	3844	5184	6724	8464
9	169	529	1089	1849	2809	3969	5329	6889	8649
16	196	576	1156	1936	2916	4096	5476	7056	8836
25	225	625	1225	2025	3025	4225	5625	7225	9025
36	256	676	1296	2116	3136	4356	5776	7396	9216
49	289	729	1369	2209	3249	4489	5929	7569	9409
64	324	784	1444	2304	3364	4624	6084	7744	9604
81	361	841	1521	2401	3481	4761	6241	7921	9801
100	400	900	1600	2500	3600	4900	6400	8100	10000

Table of triangular numbers

1	231	861	1891	3321	5151	7381
3	253	903	1953	3403	5253	7503
6	276	946	2016	3486	5356	7626
10	300	990	2080	3570	5460	7750
15	325	1035	2145	3655	5565	7875
21	351	1081	2211	3741	5671	8001
28	378	1128	2278	3828	5778	8128
36	406	1176	2346	3916	5886	8256
45	435	1225	2415	4005	5995	8385
55	465	1275	2485	4095	6105	8515
66	496	1326	2556	4186	6216	8646
78	528	1378	2628	4278	6328	8778
91	561	1431	2701	4371	6441	8911
105	595	1485	2775	4465	6555	9045
120	630	1540	2850	4560	6670	9180
136	666	1596	2926	4656	6786	9316
153	703	1653	3003	4753	6903	9453
171	741	1711	3081	4851	7021	9591
190	780	1770	3160	4950	7140	9730
210	820	1830	3240	5050	7260	9870

Table of Fibonacci and Lucas numbers

Fibonacci				Lucas			
1	8	89	987	1	18	199	2207
1	13	144	1597	3	29	322	3571
2	21	233	2584	4	47	521	5778
3	34	377	4181	7	76	843	9349
5	55	610	6765	11	123	1364	15127

Table of primes < 1000

2	101	211	307	401	503	601	701	809	907
3	103	223	311	409	509	607	709	811	911
5	107	227	313	419	521	613	719	821	919
7	109	229	317	421	523	617	727	823	929
11	113	233	331	431	541	619	733	827	937
13	127	239	337	433	547	631	739	829	941
17	131	241	347	439	557	641	743	839	947
19	137	251	349	443	563	643	751	853	953
23	139	257	353	449	569	647	757	857	967
29	149	263	359	457	571	653	761	859	971
31	151	269	367	461	577	659	769	863	977
37	157	271	373	463	587	661	773	877	983
41	163	277	379	467	593	673	787	881	991
43	167	281	383	479	599	677	797	883	997
47	173	283	389	487		683		887	
53	179	293	397	491		691			
59	181			499					
61	191								
67	193								
71	197								
73	199								
79									
83									
89									
97									

Table of cubes

1	64	343	1000	2197	4096	6859
8	125	512	1331	2744	4913	8000
27	216	729	1728	3375	5832	9261

Table of primes < 1000

2	101			401		601	701		
3	103				503				
5	107		307			607			907
7	109			409	509		709	809	
11		211	311					811	911
13	113		313			613			
17			317			617			
19				419		619	719		919
				421	521			821	
23		223			523			823	
	127	227					727	827	
29		229						829	929
31	131		331	431		631			
		233		433			733		
37	137		337						937
	139	239		439			739	839	
41		241			541	641			941
43				443		643	743		
47			347		547	647			947
	149		349	449					
	151	251					751		
53			353			653		853	953
	157	257		457	557		757	857	
59			359			659		859	
61				461		661	761		
	163	263		463	563			863	
67	167		367	467					967
		269			569		769		
71		271			571				971
73	173		373			673	773		
		277			577	677		877	977
79	179		379	479					
	181	281						881	
83		283	383			683		883	983
				487	587		787	887	
89			389						
	191			491		691			991
	193	293			593				
97	197		397				797		997
	199			499	599				

Solutions for Issue 0

2016 by Oyler

A 1	a 8	B 1	b 1	c 2
C d 2	4	D e 3	6	2
5	E f 4	2	F g 1	4
G 2	8	8	H 2	1

The 36 factors of 2016 are

1, 2, 3, 4, 6, 7, 8, 9, 12, 14, 16, 18, 21, 24, 28, 32, 36, 42, 48, 56, 63, 72, 84, 96, 112, 126, 144, 168, 224, 252, 288, 336, 504, 672, 1008 and 2016.

The only palindrome is 252.

Pentomino Primes by John Gowland

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
2	4	1	3	1	4	1	3	2	1	4	5
3	3	5	1	2	5	3	2	5	5	1	2
4	2	5	4	4	2	3	4	3	4	3	1
5	1	2	3	5	1	5	2	1	3	5	4
2	4	1	3	5	4	1	2	5	3	4	2

The letter/number assignments were

A = 41	F = 83	L = 37
B = 13	G = 43	M = 79
C = 11	H = 53	N = 29
D = 31	J = 47	P = 61
E = 17	K = 5	Q = 23

Cryptocubes by Elap

1 7	6	2 1	0	3 4	8	4 4	9	5 7
4	■	3	■	9	■	1	■	2
6 8	1	4	7	8	0	5	0	4
6	■	2	■	6	■	1	■	1
7 1	6	1	8	7	8	6	2	5
3	■	7	■	7	■	0	■	0
8 3	4	7	4	2	8	9	2	7
1	■	2	■	5	■	3	■	9
9 2	9	8	0	7	7	6	3	2

The sets used were

EAT = 913	MAN = 908
PUD = 934	NIL = 512
TOT = 545	GET = 793
LAC = 703	PMS = 746
EEL = 668	PEP = 898

Missing Digits II by Oyler

1 1	2 9	3 8	4 8	5 8	6 8	7 6
8 6	6	9 6	8	10 4	11 9	9
12 4	4	13 6	14 6	9	15 9	16 8
17 9	9	8	4	18 9	8	9

The grid has 28 cells and is just a case of seeing how to make up 28 from a combination of distinct digits – similar to a Kakuro puzzle.

Partners in Prime by Zag

1 6	2 1	3 4	6
4 2	6	5 9	6 5
7 5	8 6	9 8	7
10 6	4	1	6

Pair with prime sum must be odd/even combination. 2ac=reverse(odd 10ac) forces 16/81 & 49/64 for 2dn/9dn & 3dn/8dn. First two digits of 6dn are odd. 4ac/7ac/1dn combinations just leave 4ac clue to determine final 2ac/10ac digit.

The Wheels on the Bus by Moog

1 1	9	2 6	■	3 2	4 6
4	■	5 6	8	■	7
■	6 2	0	■	7 1	6
8 1	1	■	9 2	7	■
2	■	10 4	1	■	11 2
12 1	3	■	13 6	2	5

9ac/dn the only possible fit. 1ac and 8ac start with 1. 6ac ends in 0 and the second digit of 2dn must be even. 3ac/4dn can be 11/121, 26/676 or 27/729. 11dn/13ac are either 625/25 or 676/26. By considering the route and the number of passengers getting on and off resolve 3ac/4dn and 11dn/13ac. The rest follows.

Prime by Nod

A a 3	0	b 3	1	c 3	B d 1	4	e 2	0	f 9
6	C g 6	1	3	4	1	D h 1	9	9	8
E 1	5	0	6	F 7	3	9	7	6	1
j 9	7	7	G k 2	m 3	4	3	H 1	n 1	6
J 1	5	p 7	2	K 5	7	6	q 6	2	0
M 6	1	0	1	3	r 8	N 8	4	4	s 1
P 4	4	5	9	Q 4	4	0	5	0	1
R 2	0	6	6	3	S 1	1	9	7	1

JEAN BRODIE

When the grid is converted to letters, the message reads, DEEP IN MOST OF US IS THE POTENTIAL FOR GREATNESS. This is a quote from the book The Prime of Miss Jean Brodie by Muriel Spark, hence the clue in the title.

Chessboard Challenge by Zag

1 5	0	2 2	3 3
4 1	5 6	0	2
6	6 1	7 5	4
8 1	6	9 1	7

Square 8ac restricts 5dn outside digits. 6dn middle digit at least 4. Only one 5dn/6ac/2dn solution. 2ac has 2 in shaded square fixing 7dn/9ac and 8ac. Leads to 1ac solution and rest follows.

A Particular Takeaway by Arden

1 4	2 7	3 7	4 6	5 8	6 1	7 1	8 8	5
9 3	6	2	10 4	2	8	4	1	11 6
12 1	3	0	13 1	6	7	2	14 4	4
15 5	2	16 7	6	17 3	2	0	18 6	8
19 3	20 7	1	0	7	21 9	22 8	4	23 8
24 6	2	25 5	26 7	9	6	0	27 1	1
28 4	29 9	3	0	30 5	5	31 3	2	32 1
33 4	1	9	4	34 1	4	0	1	6
35 2	2	2	36 9	5	0	4	6	0

FISSION CHIPS

The letters used in the clues were elements that have a single letter chemical symbol and their assignments were simply their atomic number.

B = 5	O = 8
C = 6	P = 15
F = 9	S = 16
H = 1	U = 92
I = 53	V = 23
K = 19	W = 74
N = 7	Y =39

(As a theoretical chemist by training I only twigged after I'd got 12 of the 14 assignments. Aaagh! Ed)

Perplexing Pandigitals by Oyler

A 4	a 6	b 7	B c 1	4	d 7
C 3	7	D 9	7	7	6
E e 2	8	7	F f 1	g 9	9
5	G 1	h 2	7	H 2	9
J 3	2	5	K 3	5	1

	S	T	P	R
Set I	841	253	967	127
Set II	841	325	967	199
Set III	289	351	467	173
Set IV	529	861	743	647
Set V	625	741	389	977