1.

Sid the celebrant had a busy day yesterday afternoon, performing five successive wedding ceremonies at short notice. As he attended all five receptions that evening, he was a little confused the following day about who had married who and when. However, it turned out that he'd scribbled down just enough information to send out five accurate invoices for services rendered.

Who were the five couples, and at what time did each ceremony commence?

Use the grid provided to assist.

	Abe	Bob	Col	Don	Ed	1 pm	2 pm	3 pm	4 pm	5 pm
Ann										
Bea										
Cara										
Dell										
Eve										
1 pm										
2 pm										
3 pm										
4 pm										
5 pm										

(i) The brides, in alphabetical order were Ann, Bea, Cara, Dell and Eve; the bridegrooms were Abe, Bob, Col, Don and Ed.

(ii) The five ceremonies took place on the hour commencing at 1 pm

(iii) Ann was the first woman to be married, but not to Ed.

(iv) Col's ceremony commenced at 3 pm.

(v) Bob was the last man to be married, but not to Eve

(vi) Don married Dell straight after Cara's ceremony

2. TETRAHEDRON

A tetrahedron or regular triangular pyramid is shown. Two faces (orange and pink) are shown, and the other two faces (blue and yellow) are hidden.

The tetrahedron is then viewed from the four different directions shown by the arrows.

If four of the five views below are then possible, which view (a, b, c, d or e) is NOT possible?


a   b   c   d   e

3.
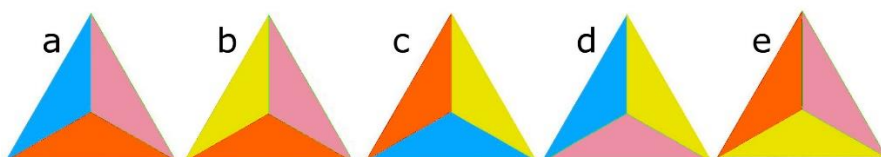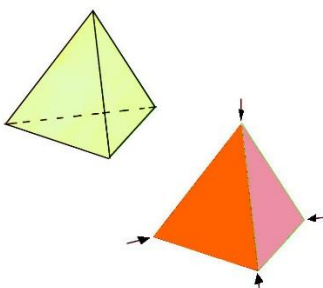
PENTAHEXES

A pentahex is a shape formed by joining five regular hexagons.
The honeycomb on the left has been made by assembling eleven pentahexes.
To make it easier, each pentahex in the honeycomb has been outlined with a black boundary.

Which three of the four pentahexes, **A**, **B**, **C** and **D** have been used in making up the honeycomb? (They can be rotated to fit, but not reflected)
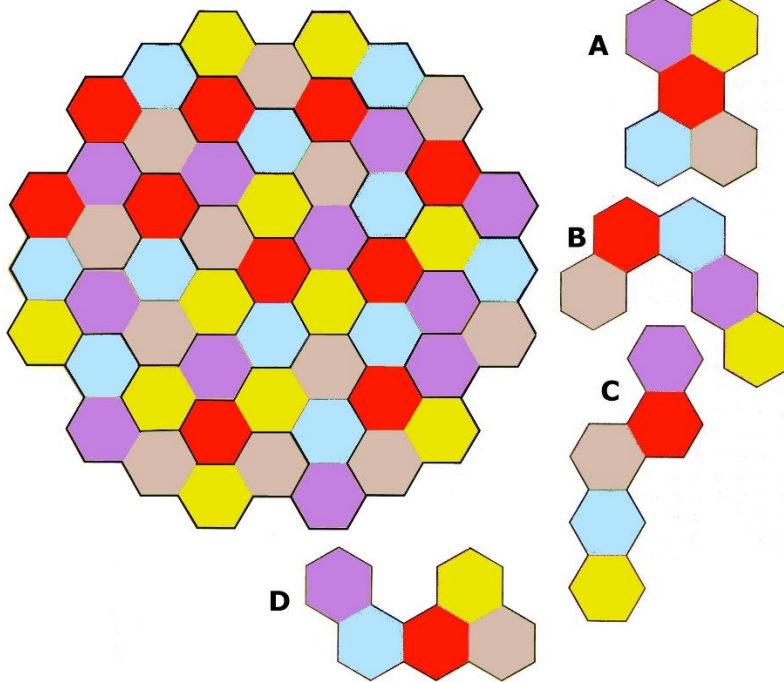
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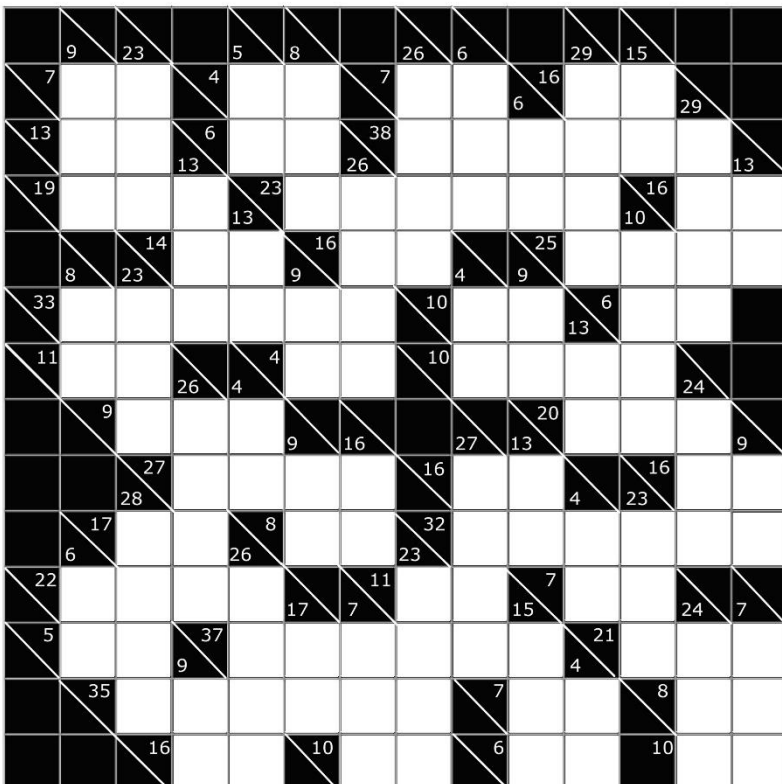
This is a Cross Sum puzzle.
It is solved by inserting one digit from 1 to 9 into each white square so that each horizontal or vertical string of digits adds up to a given target number.

For example

means "find two digits that add up to 7" and this

means "find three digits that add up to 9"

The digits you use must agree horizontally and vertically, just like the letters in a crossword puzzle

You can only use each digit once in any string. For example, the target number 16 can be made up from 9 and 7, NOT 8 and 8.

5. (a) Write the next term (fourth term) in the following sequence:

$$(9 - 1), (8 - 2), (7 - 3), \ldots\ldots$$

(b) Write the product of the first **n** terms of this sequence where **n** is any whole number with a value of 5 or greater.

6.

Figure It Out

Split 45 into four smaller numbers, **A**, **B**, **C** and **D** so that if you
- Add two to **A**
- Subtract two from **B**
- Multiply **C** by two
- Divide **D** by two

you get the same answer in each case.
Find the value of **A**, **B**, **C** and **D**

7.

SUDOKU

Put a number in each box so that each row across, each column down and each small 3 X 3 box contains each digit from 1 to 9.

(a)

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

(b)

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

8.

Figure It Out

A farmer is asked how many animals he owns.
He replies:

All sheep but four, all goats but six and all horses but eight

How many animals of each kind does he own?

9. The street number of my friend's house is the reverse of my street number.

The difference between our house numbers ends in 2.

What are the lowest possible numbers of our houses?

10. *MIND, BODY, WALLET*

At the Mind Body Wallet Weekend in our local hall, Dr. Snakeoil and seven other exhibitors hired tables in order to interest the visiting public in their particular line of goods or services. From the following clues, work out who was in charge of each table **A** to **H**, and the goods or services being sold there.

(i) One table was devoted to Free Energy Machines

(ii) Ms. Esp was on table F, directly opposite the Tarot Reader

(iii) Mr. Aura had table E, directly opposite the SlimQuick Tea table

(iv) Ms. Destiny's table was immediately to the left of the Healing Crystals table.

(v) The Palaeo Snack Bar was set up on table H.

(vi) Bea Guile sold Bach Flower essences directly across from Ms. Charisma, who was to the immediate left of the Water Divining table.

(vii) Mr. Ghostley was between Bea Guile and the Reiki table. The Reiki table was directly opposite Mystic Meryl's table.

(JUST) ANSWERS:

The answers, with worked solutions are on the next page.

1. Ann married Abe at 1 pm
   Eve married Ed at 2 pm
   Cara married Col at 3 pm
   Dell married Don at 4 pm
   Bea married Bob at 5 pm

2. View b is not possible

3. B, C & D

4.

5. (a) (6-4)   (b) 0 (zero)

6. A = 8,   B = 12,   C = 5   and   D = 20

7.

(a)

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

(b)

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

8. 1 horse, 3 goats, 5 sheep

9. 19 and 91

10. Table A - Mystic Meryl, Slimquick Tea
    Table B – Dr. Snakeoil, Free Energy Machines
    Table C – Bea Guile, Bach Flower Essences
    Table D – Mr. Ghostley, Tarot Card Readings
    Table E – Mr. Aura, Reiki Courses
    Table F – Ms. Esp, Water Divining
    Table G – Ms. Charisma, Healing Crystals
    Table H – Ms. Destiny, Palaeo Snack Bar

ANSWERS WITH SOLUTIONS:

1.

Start by putting in all the direct information provided in the clues using ticks and crosses.

Clue (iii) *Ann was the first woman to be married, but not to Ed.* Tick the square where "Ann" intersects with "1 pm". Put a cross in the squares of the times that Ann's wedding did NOT take place, and where each of the other four brides' names intersect with "1 pm". Put a cross where "Ann" intersects with "Ed".
This clue also tells you directly that Ed did not get married at 1 pm. Put a cross in that Square.

	Abe	Bob	Col	Don	Ed	1 pm	2 pm	3 pm	4 pm	5 pm
Ann					X	✓	X	X	X	X
Bea						X				
Cara						X				
Dell						X				
Eve						X				
1 pm					X					
2 pm										
3 pm										
4 pm										
5 pm										

Clue (iv) *Col's ceremony commenced at 3 pm.*

Clue (v) *Bob was the last man to be married, but not to Eve*

Clue (vi) *Don married Dell straight after Cara's ceremony*
- Don married Dell
- Don and Dell did not get married first
- Cara did not get married last

	Abe	Bob	Col	Don	Ed	1 pm	2 pm	3 pm	4 pm	5 pm
Ann				X	X	✓	X	X	X	X
Bea				X		X				
Cara				X		X				X
Dell	X	X	X	✓	X	X				
Eve		X		X		X				X
1 pm		X	X		X					
2 pm		X	X							
3 pm	X	X	✓	X	X					
4 pm		X	X							
5 pm	X	✓	X	X	X					

Ann got married at 1pm but not to Don or Ed,

The woman who got married at 1 pm did not marry Bob, Col or Ed.

But Ann IS the woman who got married at 1 pm. By elimination, she must have married Abe. Your grid now shows that Ann married Abe at 1 pm.

Dell married Don, but not at 1 pm, 3 pm or 5 pm

|	Abe	Bob	Col	Don	Ed	1 pm	2 pm	3 pm	4 pm	5 pm
Ann	✓	X	X	X	X	✓	X	X	X	X
Bea	X			X		X				
Cara	X			X		X				X
Dell	X	X	X	✓	X	X		X		X
Eve	X	X		X		X				X
1 pm	✓	X	X	X	X					
2 pm	X	X	X							
3 pm	X	X	✓	X	X					
4 pm	X	X	X							
5 pm	X	✓	X	X	X					

By elimination, Bea must have been married at 5 pm. We know that Bob was the man who got married at 5 pm, So Bea married Bob at 5 pm.

Clue (vi) again. *Don married Dell straight after Cara's ceremony.* Cara didn't get married at 1 pm, so Don and Dell didn't get married at 2 pm. Don and Dell can only have been married at 4 pm, while Cara got married (to Col) at 3 pm.

By elimination, Eve married Ed at 2 pm

	Abe	Bob	Col	Don	Ed	1 pm	2 pm	3 pm	4 pm	5 pm
Ann	✓	X	X	X	X	✓	X	X	X	X
Bea	X	✓	X	X	X	X	X	X	X	✓
Cara	X	X	✓	X	X	X	X	✓	X	X
Dell	X	X	X	✓	X	X	X	X	✓	X
Eve	X	X	X	X	✓	X	✓	X	X	X
1 pm	✓	X	X	X	X					
2 pm	X	X	X	X	✓					
3 pm	X	X	✓	X	X					
4 pm	X	X	X	✓	X					
5 pm	X	✓	X	X	X					

2. The four views a, c, d & e are possible IF the tetrahedron is as shown and the hidden sides are coloured yellow as the "base" and blue as the "back" face
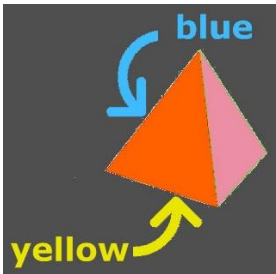
(If the blue face was the "base" and the yellow face the "back", then view b would be the only one of the five that <u>was</u> possible.)

3.
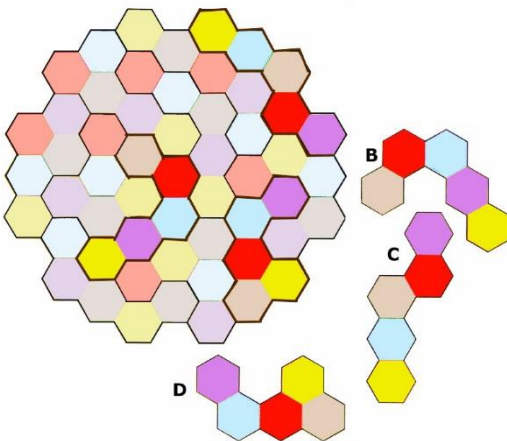
4. See above

5. (b) The fifth term (5-5) = zero. Any string of multiplying numbers which contains a zero will have a product of zero.

6. One way of approaching this is to guess what the common answer might be, then check to see if the required values of A, B, C & D add up to 45. If not, refine your guess and try again.

If common answer =	A =	B =	C =	D =	A + B + C + D
4	2	6	2	8	18 **X**

6	4	8	3	12	27 **X**
8	6	10	4	16	36 **X**
10	8	12	5	20	45 ✓

7. See above

8. *All sheep but four, all goats but six and all horses but eight*

All sheep but four means the combined number of goats and horses is four.
All goats but six means the combined number of sheep and horses is six.
All horses but eight means the combined number of sheep and goats is eight.
The fewest represented must be the horses; the sheep are in greatest quantity.
Try:
1 horse, 3 goats, 5 sheep. THAT WORKS

9. The two street numbers must each consist of at least two digits.

Possible pairs of digits that provide differences of 2 are:
 3 & 1;   4 & 2;   5 & 3;   6 & 4;   7 & 5;   8 & 6;   9 & 7;   9 & 1

13 and 31 do not work (difference = 18)
24 and 42 do not work (difference = 18)
35 and 53 do not work (difference = 18)
Similarly 46 and 64, 57 and 75, 68 and 86, provide differences of 18.
91 and 19 – difference is 72.

10. Start by putting in direct information from the clues (BLACK). Then list all other possibilities for each table (BLUE)
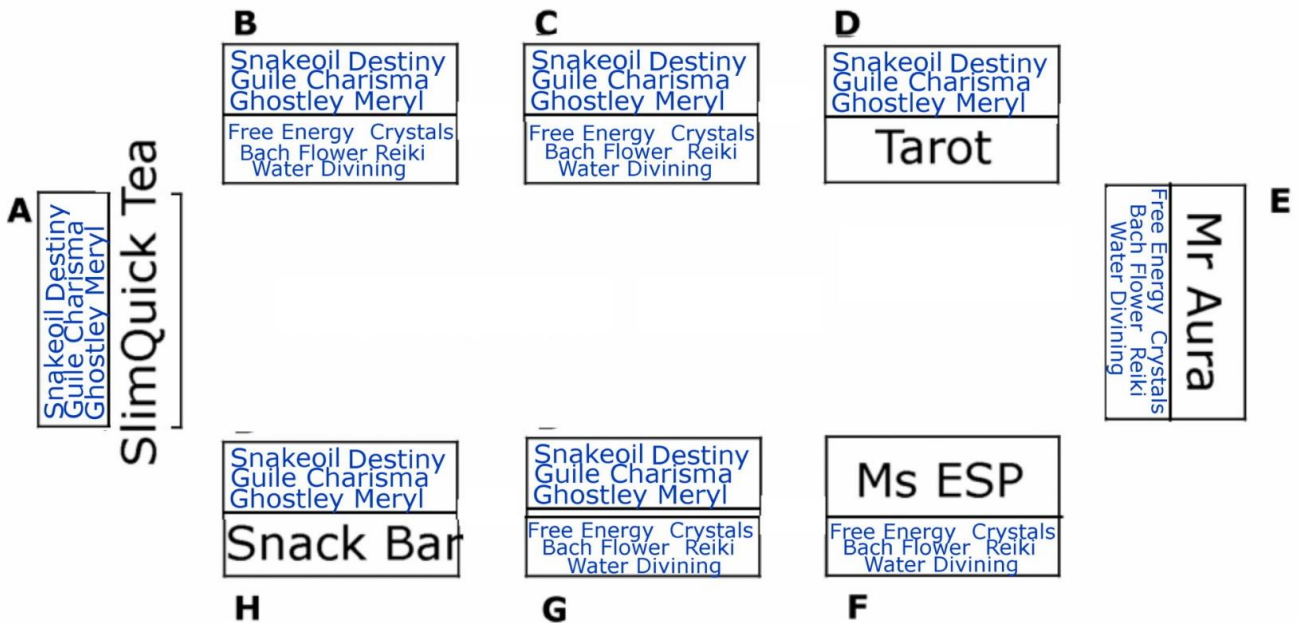

Now use the clues to eliminate where possible.

Clue (vi) *Bea Guile sold Bach Flower essences directly across from Ms Charisma, who was to the immediate left of the Water Divining table.*

- Bea Guile wasn't on table A (Slimquick Tea) or D (Tarot) or H (Snack Bar)
- Her Bach Flower table wasn't table E (Mr Aura) or F (Ms Esp)

So Bea Guile's Bach Flower table could have been B, in which case Ms Charisma ran the snack Bar at H; OR it could have been C, in which case Ms Charisma was at G; OR it could have been G, in which case Ms Charisma was at C.

However, Ms Charisma was to the immediate left of the Water Divining table, so she could not have been at table C; Bea Guile could not have been at G.

Ms Guile is at B or C; Ms Charisma is at H or G; the Water Divining table is G or F.
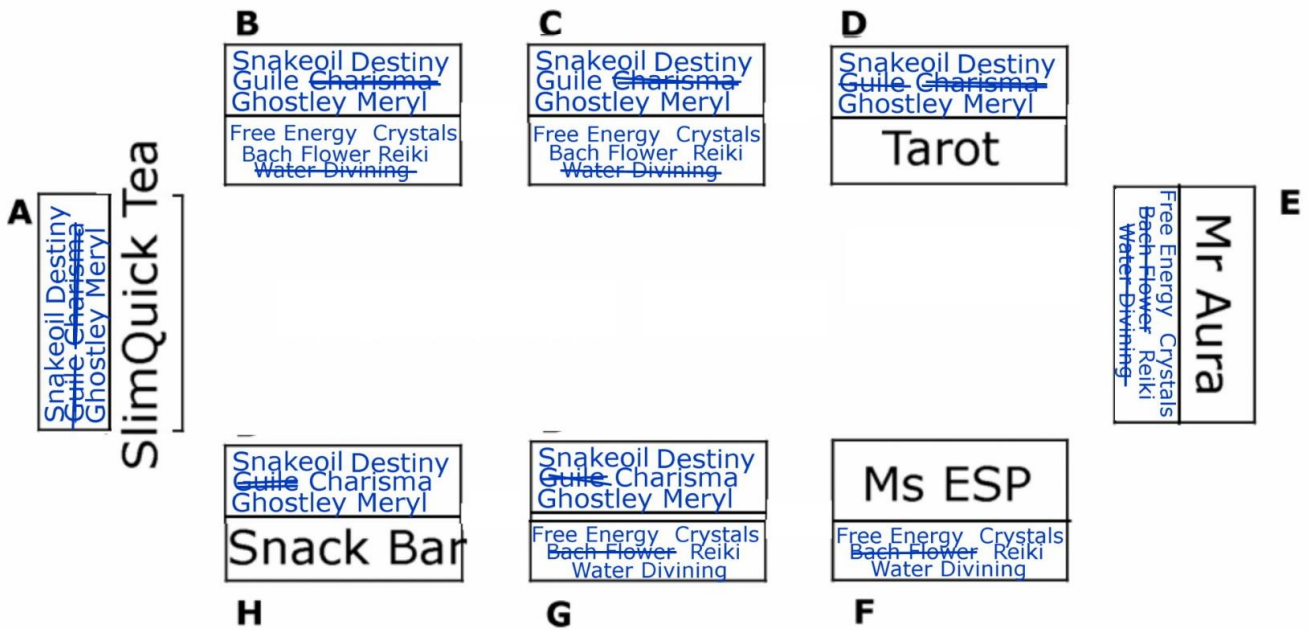
Clue (vii) *Mr Ghostley was between Bea Guile and the Reiki table. The Reiki table was directly opposite Mystic Meryl's table.*

- Mr Ghostley could not have been at table A or B or C. He wasn't at E or F, and could mot have been at G or H. He must have been at table D, which puts Bea Guile at C, the Reiki table at E and Ms Charisma at G. The Water Divining table was F, and Mystic Meryl was at table A
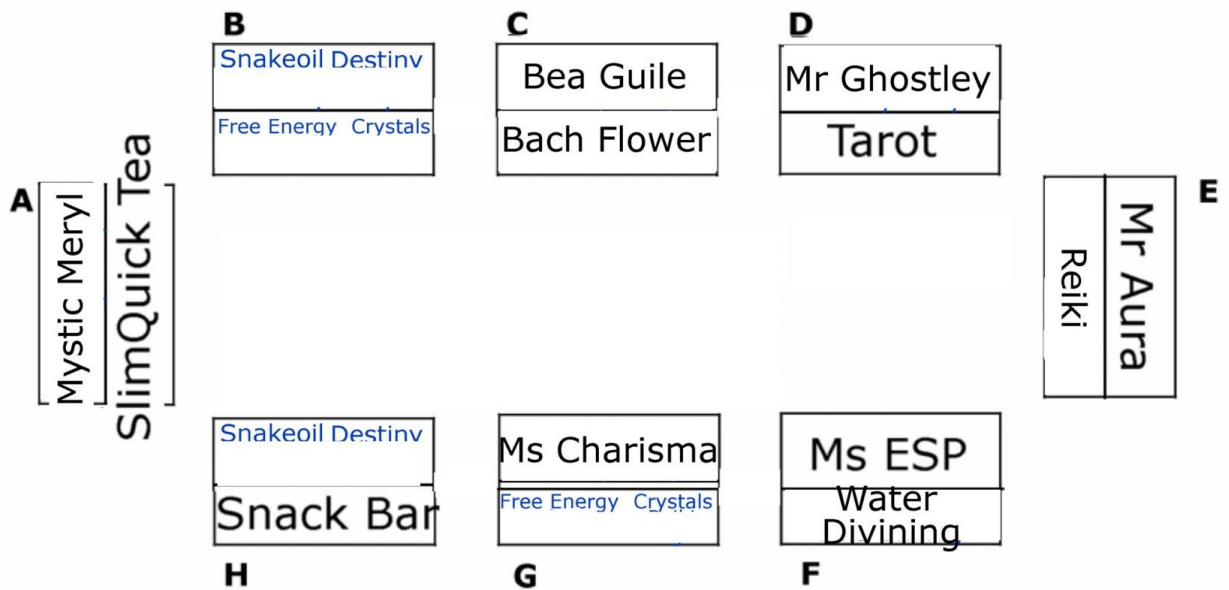
Clue (iv) *Ms Destiny's table was immediately to the left of the one displaying Healing Crystals.*

Ms Destiny ran the Snack Bar at H, Ms Charisma had the Healing Crystals at G, and by elimination Dr Snakeoil had the Free Energy table at B