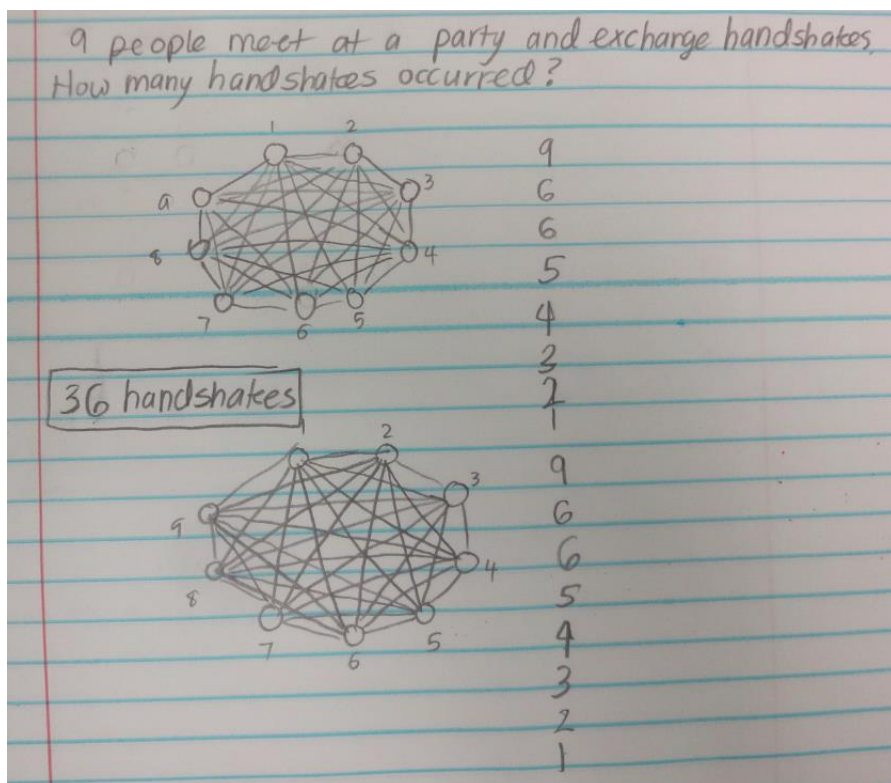


## ALL SHOOK UP

Nine people meet at a party.  
They all exchange handshakes.  
How many handshakes are  
exchanged?



Source: [Shutterstock](#)



Notice the above work shows nine people in a circle and draws lines to indicate a handshake. For example, if a line is drawn from person 1 to person 4, we count this as **one** handshake. Thus, we avoid double counting. The answer is, in fact, 36 handshakes total.

1	2	3	4	5	6	7	8	9
8	7	6	5	4	3	2	1	0 = 36

This is another way to view the problem. **Person 1** shakes with 8 people; **Person 2** shakes with 7 people (because **Person 1** already shook with **Person 2**); **Person 3** shakes with 6 people and so on. Once you get to **Person 9**, there are no more handshakes (notice the 0). **LOOK CAREFULLY AND YOU WILL SEE THIS ON THE BOARDS BELOW AS WELL.** Add the numbers in black (not red) to get 36.

x	xxxxxxx	8
x	xxxxxxx	7
x	xxxxxx	6
x	xxxxx	5
x	xxxx	4
x	xxx	3
x	xx	2
x	x	1
		+
		36

36	1	2	3	4	5	6	7	8	9
	2	3	4	5	6	7	8	9	
	3	4	5	6	7	8	9		
	4	5	6	7	8	9			
	5	6	7	8	9				
	6	7	8	9					
	7	8	9						
	8	9							
	9								

Handshakes

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

36

The similarities in the above solutions are self-evident! Just find a way to systematically organize your work.