



## Problem of the Week

### Problem C and Solution

### Party Games and Snacks

#### Problem

Pavak, Rachit, and Sana arrived at a party at three different times. They each brought one of their favourite snacks to share with the other two (one brought pretzels; one brought cookies; one brought licorice), and their favourite game (one brought jacks; one brought dominoes; one brought cards).

We know a few other facts:

1. The first to arrive did not bring cookies.
2. Pavak arrived second and brought cards.
3. Rachit arrived before Sana.
4. The person who brought cookies also brought jacks.
5. The person who brought pretzels did not bring dominoes.

Determine the order each person arrived in, what they each brought for a snack, and which game they each brought.

#### Solution

When solving logic problems, setting up a table to fill in is generally a good way to start.

	Order of Arrival	Snack	Game
Pavak			
Rachit			
Sana			

Some of the given information is often more helpful than other information. For example, in the second statement we learn that Pavak arrived second and brought cards. Now the third statement gives us the fact that Rachit arrived first and Sana arrived third. (This is true since Rachit arrived before Sana and she could not arrive second leaving only the first and third spots left.) We add this information to the table.

	Order of Arrival	Snack	Game
Pavak	2 <sup>nd</sup>		cards
Rachit	1 <sup>st</sup>		
Sana	3 <sup>rd</sup>		



We can combine the first statement and the fourth statement. Rachit did not bring cookies. The person who brought cookies also brought jacks. This cannot be Pavak since he brought cards. Therefore, Sana brought cookies and jacks. Since there is only one game unaccounted for, Rachit must have brought the dominoes. We add this information to our table.

	Order of Arrival	Snack	Game
Pavak	2 <sup>nd</sup>		cards
Rachit	1 <sup>st</sup>		dominoes
Sana	3 <sup>rd</sup>	cookies	jacks

We can now use the fifth statement to conclude that Pavak brought pretzels, since the person bringing pretzels did not bring dominoes and Pavak is the only one without a snack accounted for other than Rachit (who brought the dominoes). We add this information to our table.

	Order of Arrival	Snack	Game
Pavak	2 <sup>nd</sup>	pretzels	cards
Rachit	1 <sup>st</sup>		dominoes
Sana	3 <sup>rd</sup>	cookies	jacks

The only snack unaccounted for is the licorice and Rachit is the only person whose snack is unknown. Therefore, Rachit brought licorice and our table can be completed.

	Order of Arrival	Snack	Game
Pavak	2 <sup>nd</sup>	pretzels	cards
Rachit	1 <sup>st</sup>	licorice	dominoes
Sana	3 <sup>rd</sup>	cookies	jacks

The information is summarized in the table, but will be stated below for completeness.

- Rachit arrived first and brought licorice and dominoes.
- Pavak arrived second and brought pretzels and cards.
- Sana arrived third and brought cookies and jacks.