

Mathematical Puzzles, Games and Other Diversions

Day 2

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A Tough Problem

Cheryl tells Albert and Bernard that her birthday party is on one of these dates:

May 15, May 16, May 19, June 17, June 18, July 14, July 16, August 14, August 15, or August 17

Then she tells Albert the month only, and Bernard the day of the month it falls on only.

Then the following conversation ensued:

Albert: I don't know when Cheryl's birthday party is, but I know that Bernard doesn't know either.

Bernard: At first I didn't know when Cheryl's birthday party was, but I know now.

Albert: Then I also know when Cheryl's birthday party is.

Question: When is the party?

A Tough Problem: Solution

	14	15	16	17	18	19
May		X	X			X
June				X	X	
July	X		X			
Aug	X	X		X		

Albert: I don't know when Cheryl's birthday party is, but I know that Bernard doesn't know either.

This tells us that Cheryl's party can't be in May or June. If it was in May, then it's possible that Bernard was told 19, in which case he WOULD know the date of Cheryl's party since 19 does not appear in any other month. Similarly, June is ruled out.

A Tough Problem: Solution (cont.)

	14	15	16	17	18	19
May						
June						
July	X		X			
Aug	X	X		X		

Bernard: At first I didn't know when Cheryl's birthday party was, but I know now.

This tells us that Cheryl's party can't be on the 14th. If it was, then Bernard wouldn't know if it was July or August.

A Tough Problem: Solution (cont.)

	14	15	16	17	18	19
May						
June						
July			X			
Aug		X		X		

Albert: Then I also know when Cheryl's birthday party is.

This tell us that Cheryl's party must be in July. If it was in August, Bernard would have two options: Aug 15 or Aug 17.

A Tough Problem: Solution (cont.)

	14	15	16	17	18	19
May						
June						
July			X			
Aug						

So this leaves us with only one outcome. The party must be on **July 16th.**

Let's Play

Tic Tac Toe: You know the rules.

The Game of 21: To start, player 1 chooses a number from 1 and 3. Then player 2 adds a number from 1 to 3 to player 1's number to create a new total. This continues until the total reaches 21. Whoever gets to 21 is the winner.

Inverse Tic Tac Toe: The only difference from the regular game is that you win if your OPPONENT is the first to get 3 in a row.