



Problem of the Month Party Time



Level A

Cindy had a party. She invited two guests. Her guests each invited four guests, and then those guests each invited three guests.

How many people were at Cindy's party?

Explain how you determined your solution.

Level B

At Leslie's party $\frac{1}{4}$ of the people had long hair. One half of the people at the party were boys, $\frac{1}{4}$ of the girls had short blond hair. None of the boys had long hair.

If there were 32 guests, what is the maximum number of girls who could have had short red hair?

Show how you determined your answer and why you know you have a correct solution.

Level C

Mia, Jake, Carol, Barbara, Ford and Jeff are all going to a costume party. Figure out which person is wearing what costume and when they arrived at the party.

- The person that arrived fourth was wearing bathing suit.
- Barbara was the last to arrive.
- Jake and Mia arrived and stayed together.
- The first person was dressed as a French Maid.
- Superman arrived right before Barbara.
- The Potato Heads were always together at the party.
- Ford was a Surfer Dude.
- The French Maid was not Carol.
- The Vampire arrived after Superman.

Level D

Your Aunt is having a baby. You have created a party game for a baby shower. It is called pick the gender. You put pink and blue tiles into a bag. You ask two guests to pick one tile out of the bag without looking. You tell your guests that if they are the same color, player A wins and if they are two different colors, then player B wins.

How many tiles of which colors did you put into the bag to make sure that both players have an equal chance of winning?

Explain your solution and why it is fair.

Level E

A man and his wife invite 5 other couples to a dinner party. As the guests arrive for drinks before dinner, they shake hands. Not everybody shakes everybody's hands, and of course no one shakes hands with his own spouse. Later, as they sit down to dinner, the host asks each other person, including his wife, "how many hands you shake?" He notices, to his surprise, that each respondent shook a different number of hands.

How many did his wife shake?

Explain your solution and justify your reasoning.



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Primary Version Level A

Materials: Sets of counters.

Discussion on the rug: (Teacher asks the class.) "Who likes to have parties in our class? We are going to solve a problem that is about inviting friends to a party. Who would like to be our party host?" (Teacher invites a student to come forward). The teacher says to the host, "Let's start by inviting three friends to the party." (The student picks three friends to come forward.) "How many people are at the party?" the teacher asks the class. (Students share their answers and explain how they know.) The teacher says, "Suppose each of the friends phone two people to come to the party, how many will be at the party altogether?" (Students share their ideas and discuss solutions. Then they actually act it out and count the total number of people at the party).

In small groups: (Students have counters available.)

Teacher says, "Cindy had a party. She invited two guests. Her guests each invited four guests, and then those guests each invited three guests. How many people were at Cindy's party?" (Students work together to find a solution. After the students are done, the teacher asks students to share their answers and method.)

At the end of the investigation: (Students either discuss or dictate a response to this summary question.) "Explain and show how you know how many people are at the party."