

# **LOGIC GAMES**

BMC-Upper Beginners II

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# WARMUP

Two guards stand by two doors. One of the guards always tells the truth, and the other always lies – but you do not know which is which. One door leads to a world with dogs but no cats, while the other leads to a world with cats but no dogs.

If you can ask one guard one question, what do you ask?  
And, using the guard's answer, which door do you enter?

# A VARIATION

Now, there are two doors which lead to the same two places. But now, only one guard stands in your way. He either always tells the truth or always lies, but you do not know which. You can ask only one question. What do you ask? And based on his answer, which door do you enter?

# A CARD GAME

You are presented the four cards below, along with the following rule:

- If a card has a prime number on one side, then it must have a vowel on the other.

How many cards must you flip over to verify this rule? Which ones?



The administrator of a small music school has to assign six numbered parking spaces in front of the school to six music teachers employed there: Nan, Olivia, Pablo, Quincy, Robert, and Sasha.

The six spaces are laid out adjacent to each other and in numerical order. Space #1 is closest to the front door of the school.

Sasha's space is next to Nan's space.

Nan's space is closer to the door than Quincy's space.

Olivia's space is next to only one other space.

There are exactly three other teachers' spaces between Pablo's and Sasha's spaces.

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Sasha's space is next to Nan's space.

Nan's space is closer to the door than Quincy's space.

Olivia's space is next to only one other space.

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Which of the following teachers could be in space #4?

- A. Nan
- B. Olivia
- C. Pablo
- D. Quincy
- E. Sasha

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Sasha's space is next to Nan's space.

Nan's space is closer to the door than Quincy's space.

Olivia's space is next to only one other space.

There are exactly three other teachers' spaces between Pablo's and Sasha's spaces.

If Olivia's space is closest to the door, which teacher's space must be farthest from the door?

- A. Nan
- B. Pablo
- C. Quincy
- D. Robert
- E. Sasha

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Sasha's space is next to Nan's space.

Nan's space is closer to the door than Quincy's space.

Olivia's space is next to only one other space.

There are exactly three other teachers' spaces between Pablo's and Sasha's spaces.

If Robert's space is adjacent to Pablo's space, which of the following cannot be true?

- A. Sasha is in space #1.
- B. Quincy is in space #5.
- C. Olivia's space is next to Sasha's.
- D. Olivia's space is next to Pablo's.
- E. Nan is in one of the two middle spaces.



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The six spaces are laid out adjacent to each other and in numerical order. Space #1 is closest to the front door of the school.

Sasha's space is next to Nan's space.

Nan's space is closer to the door than Quincy's space.

Olivia's space is next to only one other space.

There are exactly three other teachers' spaces between Pablo's and Sasha's spaces.

Which one of the following is a possible layout of the order of the school's parking spaces, starting with the space closest to the door?

- A. Sasha, Nan, Robert, Quincy, Pablo, Olivia
- B. Robert, Sasha, Nan, Quincy, Pablo, Olivia
- C. Olivia, Nan, Robert, Sasha, Quincy, Pablo
- D. Olivia, Sasha, Nan, Quincy, Pablo, Robert
- E. Pablo, Sasha, Quincy, Robert, Olivia, Nan

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Sasha's space is next to Nan's space.

Nan's space is closer to the door than Quincy's space.

Olivia's space is next to only one other space.

There are exactly three other teachers' spaces between Pablo's and Sasha's spaces.

Which teacher's space must be next to Quincy's?

- A. Nan
- B. Olivia
- C. Pablo
- D. Robert
- E. Sasha

A meal subscription service must load each customer's weekly box with at least one meal from each of the meal categories: breakfast, lunch, or dinner. This week, the breakfast choices are French toast, Omelets, or Waffles. Lunch selections include Chili, Paninis, or a Chopped Salad. Dinner options are Steak, Chicken Parmesan, and Pad Thai.

When the company packs the boxes, the following conditions must be met:

- (1) An equal number of choices from each meal type must be packed in the box.
- (2) Paninis and Steak cannot be packed together
- (3) If a customer gets a Chopped Salad, Chicken Parmesan must also be supplied
- (4) Chili must be packed if the box includes French Toast
- (5) Chopped Salads are not included if Paninis are

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If two dinner options are packed in the box, which of the following must be false?

- A. Steak and Chicken Parmesan are in the box
- B. Chili and Chopped Salad are in the box
- C. Paninis and Chili are in the box
- D. Omelets and French Toast are in the box
- E. Steak and Pad Thai are in the box

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If Paninis are the only lunch item in the box, how many possible combinations of meals can be added to that box?

- A. 2
- B. 3
- C. 4
- D. 5
- E. 6

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If condition (1) is lifted but the rest remain, what is the greatest number of different foods that can be included in a box?

- A. 4
- B. 5
- C. 6
- D. 7
- E. 8

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Which of the following is a possible subscription box for a new customer?

- A. Omelets, Waffles, and Steak
- B. French Toast, Chicken Parmesan, and Panini
- C. French Toast, Omelets, Chili, Steak, and Pad Thai
- D. Omelets, Waffle, Chili, Panini, Chicken Parmesan, and Pad Thai
- E. French Toast, Omelets, Chili, Chopped Salad, Steak, and Pad Thai

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If Pad Thai and a Chopped Salad are both in a box, then which of the following must also be included?

- A. French Toast
- B. Omelets
- C. Chili
- D. Waffles
- E. Steak



Four companies, T, U, V, and W, are planning to make presentations at an industry conference. The four time slots available for their presentations are 9 a.m., 11 a.m., 2 p.m., and 4 p.m. Lunch is served at 1 p.m. The companies are asked to give their preferences for time slots, and they respond in order of preference as follows:

- T: 2 p.m., 11 a.m., 4 p.m., 9 a.m.
- U: 11 a.m., 4 p.m., 9 a.m., 2 p.m.
- V: 2 p.m., 4 p.m., 11 a.m., 9 a.m.
- W: 11 a.m., 2 p.m., 4 p.m., 9 a.m.

The conference then assigns time slots by giving one company its first choice, another company its first choice from the remaining three time slots, and so on until all four companies are assigned a time slot.

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- V: 2 p.m., 4 p.m., 11 a.m., 9 a.m.
- W: 11 a.m., 2 p.m., 4 p.m., 9 a.m.

The conference then assigns time slots by giving one company its first choice, another company its first choice from the remaining three time slots, and so on until all four companies are assigned a time slot.

- Which of the following could be true?
- A. Exactly three companies get their second choice.
  - B. Exactly two companies get their third choice.
  - C. Exactly three companies get their third choice.
  - D. Exactly two companies get their fourth choice.
  - E. Exactly three companies get their fourth choice.

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The conference then assigns time slots by giving one company its first choice, another company its first choice from the remaining three time slots, and so on until all four companies are assigned a time slot.

Which of the following is a possible order in which the presentations could be assigned?

- A. W, V, T, U
- B. U, V, T, W
- C. U, T, W, V
- D. V, W, U, T
- E. T, U, W, V

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If Company V makes their presentation before lunch, which of the following cannot be true?

- A. W picked second.
- B. T picked first.
- C. T picked before U.
- D. V picked second.
- E. W picked before U.

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- W: 11 a.m., 2 p.m., 4 p.m., 9 a.m.

The conference then assigns time slots by giving one company its first choice, another company its first choice from the remaining three time slots, and so on until all four companies are assigned a time slot.

- If Company V's presentation goes first, which of the following could be true?
- A. Company T presents at 11 a.m.
  - B. Company U presents at 4 p.m.
  - C. Exactly three companies got their first choice.
  - D. Exactly two companies got their second choice.
  - E. Exactly two companies got their third choice.

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The conference then assigns time slots by giving one company its first choice, another company its first choice from the remaining three time slots, and so on until all four companies are assigned a time slot.

- Which of the following must be true?
- A. At least one company got their second choice.
  - B. At most one company got their first choice.
  - C. At least one company got their fourth choice.
  - D. At least one company got their third choice.
  - E. At least one company got their first choice.

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- W: 11 a.m., 2 p.m., 4 p.m., 9 a.m.

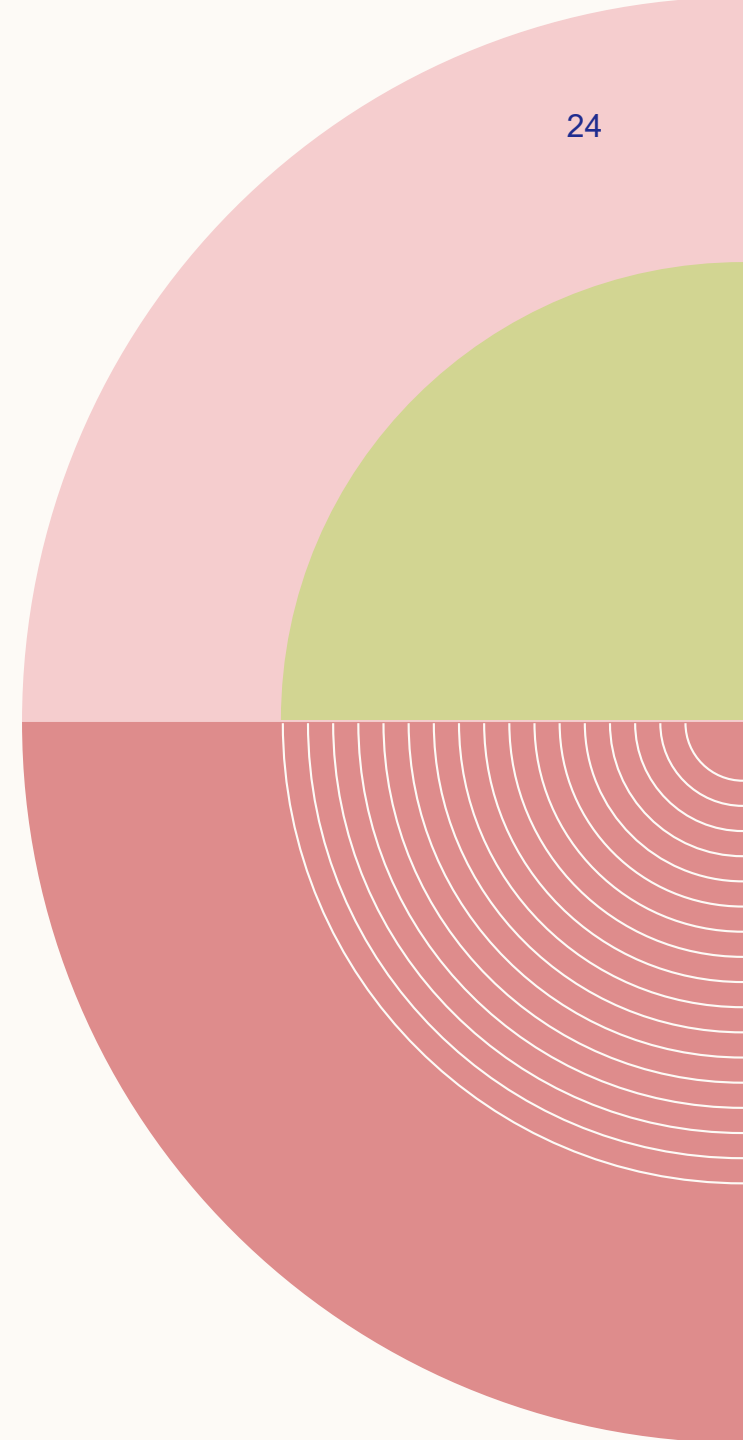
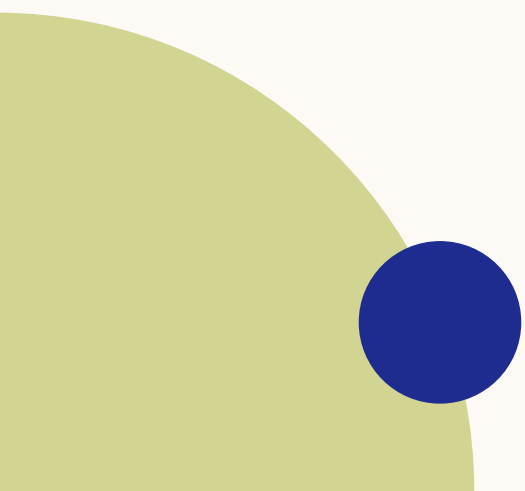
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Which of the following cannot be true?

- A. Company V goes at 11 a.m.
- B. Company T goes at 11 a.m.
- C. Company W goes at 2 p.m.
- D. Company U goes at 4 p.m.
- E. Company W goes at 11 a.m.

# MORE PROBLEMS

<https://www.cracklsat.net/lSAT/logic-games/>







# THANK YOU

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