

**Hybrid Game 1**

Four couples—JJ, KK, LL, MM—are standing in a line. Their positions are numbered consecutively from 1 to 8, and each person is holding hands with the persons on either side of him or her.

J and J are holding hands.

K and K are not holding hands.

L and L are holding hands.

One of the Ls is at one end of the line, and one of the Ms is at the other end.

1. If M is at position 2 and K is at position 3, then a J must be at position
  - (A) 1
  - (B) 4
  - (C) 6
  - (D) 7
  - (E) 8
  
2. If J is in position 2, it must be true that
  - (A) M is in position 3.
  - (B) J is in position 4.
  - (C) K is in position 7.
  - (D) L is in position 5.
  - (E) M is in position 5.
  
3. If an M is in position 8, which of the following CANNOT be true?
  - I. The other M is in position 5.
  - II. The Ks can be in positions 3, 5, or 7.
  - III. One of the Js is in position 3.
  - (A) I only
  - (B) II only
  - (C) III only
  - (D) II and III only
  - (E) I, II, and III
  
4. If the Ks are separated by at most one other person, then which one of the following groups could be standing in the four even-numbered positions in one arrangement?
  - (A) The two Js and the two Ls.
  - (B) The two Ks and the two Ls.
  - (C) The two Js and the two Ms.
  - (D) One J, one K, one L, and one M.
  - (E) One J, the two Ks, and one L.
  
5. Which one of the following must be true?
  - (A) At least one J is holding hands with a K.
  - (B) At least one L is holding hands with a J.
  - (C) At least one L is holding hands with a K.
  - (D) At least one M is holding hands with an L.
  - (E) At least one J is holding hands with an M.

**Hybrid Game 2**

Five friends are playing chess. Three are women—Laura, Mary, and Naomi—and two are men—Oliver and Paul. There are three chessboards in a row.

Naomi does not sit next to either Mary or Oliver.

Laura does not play Naomi.

The middle board always has two players.

6. If Mary plays Paul on the middle board and Paul does not sit between two other players, which one of the following is a complete and accurate list of those who might not have an opponent?
  - (A) Laura
  - (B) Naomi
  - (C) Laura and Naomi
  - (D) Laura and Oliver
  - (E) Laura, Naomi, and Oliver
  
7. If Paul does not have an opponent, which one of the following must be false?
  - (A) Mary plays Naomi.
  - (B) Mary plays Oliver.
  - (C) Mary plays Laura.
  - (D) Laura does not sit between two other people.
  - (E) Laura sits between Naomi and Paul.
  
8. If players of the same sex do not play each other and Mary sits between two other players, which one of the following is a complete and accurate list of those players who might be Oliver's opponent?
  - (A) Mary and Laura
  - (B) Mary and Naomi
  - (C) Naomi
  - (D) Mary, Naomi, and Laura
  - (E) Mary
  
9. If players of the same sex do not play each other, which one of the following must be false?
  - (A) Naomi plays Paul.
  - (B) Naomi plays Oliver.
  - (C) Laura plays Oliver.
  - (D) Paul plays Mary.
  - (E) Paul does not have an opponent.
  
10. If the women always play each other, which one of the following must be true?
  - (A) Laura plays Mary.
  - (B) Mary plays Naomi.
  - (C) Laura has no opponent.
  - (D) One of the women does not have an opponent.
  - (E) Paul does not have an opponent.
  
11. How many different people can Naomi play against?
  - (A) 0
  - (B) 1
  - (C) 2
  - (D) 3
  - (E) 4

**Hybrid Game 3**

An official is assigning five runners—Larry, Ned, Olivia, Patricia, and Sonja—to parallel lanes numbered consecutively 1 through 5. The official will also assign each runner to represent a different charity—F, G, H, J, and K—not necessarily in order of the runner’s names as given. The following ordering restrictions apply:

The runner representing K is assigned to lane 4.

Patricia is assigned to the only lane between the lanes of the runners representing F and G.

There are exactly two lanes between Olivia’s lane and the lane of the runner representing G.

Sonja is assigned to a higher-numbered lane than the lane to which Ned is assigned.

12. Which one of the following is a possible assignment of runners to lanes by the charity they represent?

- |     |          |          |          |          |          |
|-----|----------|----------|----------|----------|----------|
|     | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
| (A) | F        | G        | H        | K        | J        |
| (B) | G        | H        | J        | K        | F        |
| (C) | G        | K        | F        | J        | H        |
| (D) | H        | J        | G        | K        | F        |
| (E) | J        | H        | F        | K        | G        |

13. The lane to which Patricia is assigned must be a lane that is

- (A) next to the lane to which Larry is assigned
- (B) next to the lane to which Ned is assigned
- (C) separated by exactly one lane from the lane to which Ned is assigned
- (D) separated by exactly one lane from the lane to which Olivia is assigned
- (E) separated by exactly one lane from the lane to which Sonja is assigned

14. If Olivia is assigned to lane 2, which one of the following assignments must be made?

- |     |                |             |
|-----|----------------|-------------|
|     | <u>Charity</u> | <u>Lane</u> |
| (A) | F              | 1           |
| (B) | G              | 5           |
| (C) | H              | 1           |

- (D) H 3
- (E) J 5

15. Which one of the following, is a complete and accurate list of runners each of whom could be the runner representing F?

- (A) Larry, Ned
- (B) Patricia, Sonja
- (C) Larry, Ned, Olivia
- (D) Larry, Ned, Sonja
- (E) Ned, Patricia, Sonja

16. If Ned is the runner representing J, then it must be true that

- (A) the runner representing G is assigned to lane 1
- (B) the runner representing H is assigned to lane 2
- (C) Larry is the runner representing K
- (D) Olivia is the runner representing F
- (E) Patricia is the runner representing H

17. If Larry represents J, which one of the following could be the assignment of runners to lanes?

- |     |          |          |          |          |          |
|-----|----------|----------|----------|----------|----------|
|     | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
| (A) | Larry    | Olivia   | Ned      | Patricia | Sonja    |
| (B) | Larry    | Ned      | Olivia   | Sonja    | Patricia |
| (C) | Larry    | Sonja    | Patricia | Ned      | Olivia   |
| (D) | Ned      | Olivia   | Larry    | Patricia | Sonja    |
| (E) | Ned      | Sonja    | Olivia   | Patricia | Larry    |