

On the island of knights (who always tell the truth) and knaves (who always lie) you encounter two people, A and B. Person A says "B is a knave." Person B says "At least one of us is a knight." Determine whether each person is a knight or a knave. Clearly show your reasoning. Scan and upload your work here. PDF is the only acceptable file format.

Final Conclusion: A is knave and B is knight (See explanations below)

We will consider 4 cases:

Case# 1: Assume that both A and B are Knights.

The statement of A that "B is a knave" is true but it contradicts the Case # 1 assumption that both A and B are knights

Case # 2: Assume that both A and B are knaves

The opposite of what A says is true.

It is true that "B is a knight" but it contradicts the Case # 2 assumption that both A and B are knaves

Case # 3: Assume A is knight and B is knave

The statement of A that "B is knave" is true

The opposite of what B says is true.

It is true that "Both A and B are knaves" but it contradicts Case # 3 assumption that A is knight

Case # 4: Assume that A is knave and B is knight

The opposite of what A says is true.

It is true that "B is knight"

The statement of B that "At least one of A and B is knight" is true

It is the only case with no contradiction.

We conclude that A is knave and B is knight.