

1 We're on a special island where everyone is either a knight or a knave.

Knights always tell the truth.

Knives always lie.

You meet two people. Zoey says Mel is a knave. Mel says "Neither Zoey nor I are knaves."

**Can you determine who is a knight and who is a knave?**

2 You meet two people. Peggy tells you that "of Zippy and I, exactly one is a knight". Zippy tells you that only a knave would say that Peggy is a knave.

**Can you determine who is a knight and who is a knave?**

3 While traveling on the island, you want to go to the capital, but aren't sure if you're going the right way. You meet someone. You ask them 2 questions:

A: Is this the correct way to the capital?

B: Did you just answer YES?

They answer NO and YES. Is this the correct way to the capital?

What is the answers are NO and NO? Can you determine if they are a knight or knave?

4 Instead of the two questions above, you ask them:

A: Did you wake up before 7am?

B: Is this the correct way to the capital?

They answer NO and YES. Is this the correct way to the capital?

What is the answers are NO and NO? Can you determine if they are a knight or knave?

5 While walking down the road, you meet 20 people(1 at a time). For each person, you can only ask them 1 question(20 questions total). Can you find out whether this is the right way to the capital?

What if you can ask them 2 questions? What questions would you ask?

6 Adam steals a secret message BCDEFGHIJKLM from Lilith to Eve. From the conversation he overheard earlier, he knows that the English message is either TODAYZZZZZZZ or TOMORROWZZZZ.

Adam knows that the two girls had agreed to encode each letter of the message differently. They agreed on a certain position of the wheel for the 1st letter, and another position of the wheel for the 2nd letter, and so on. **Can Adam break the code?**

What if they only change the position of the message every two letters?