

**Instructions:** For Wednesday, carefully write up a solution to the knight and knave puzzle below. The solution should consist of both the answer (which troll is which) and a careful argument for why that answer must be correct. Treat this like a mini essay. Your write-up should be somewhere between two and five paragraphs. You might find it easier to type this assignment, but neatly hand-written is also acceptable.

1. While walking through a fictional forest, you encounter three trolls. Each is either a *knight*, who always tells the truth, or a *knave*, who always lies. The trolls will not let you pass until you correctly identify each as either a knight or a knave. Each troll makes a single statement:

Troll 1: Only one of us is a knave.

Troll 2: No, only one of us is a knight.

Troll 3: We are all knaves.

Which troll is which?