The Paradigm Discourses

"Self-Reference"

What are the odds that a random guess will get the right answer to this question?

A. 25%
B. 50%
C. 33%
D. 25%

Dogma pulled out the next card, then read out loud the challenge on the front.

Logic and Proof each scribbled furiously, then almost simultaneously announced their answers.

"True"

"False"

"The correct answer is…" on rare occasions Dogma indulged in modest theatrics. Flipping the card over, "False."

Paradigm was enjoying the competition. The score had narrowed, now 5 versus 6. Just two more challenges to wrap up the first match; 13 true/false puzzles. The choice of 13 was not accidental. Mathematics had suggested it. Given that the first right answer was worth one point he argued that being prime, there could never be a maximal tie, up to 12 participants. There would always be at least one winner and at least one loser, so even if two or more players tied, a simple runoff could be staged with a reduced number of players. Eventually a single winner would emerge. Since there were less than a dozen in the group, 13 challenges sufficed with a small cushion for growth and could be retained as an invariant in the game.

This month the challenge of coming up with the questions had fallen to Paradigm. He saw it as an opportunity; one that was about to be realized. After some careful thinking, he had chosen two questions for the very end, questions designed to thwart Mathematics' choice of 13.

Dogma pulled out card 12, and read its challenge, "This statement is true."

Logic and Proof were no fools, they had learned to be suspicious of questions with obvious answers, and so each took a few moments to think carefully before answering. As the time limit approached neither had spoken and the room got very quiet. Finally, with just one second to go, each announced their answer, but it seemed almost as if their answers were more random than reasoned.

"True"

"False"

Paradigm smiled – perfect, just what he had hoped for.

Dogma flipped the card over, and then froze. The back claimed that both answers were correct. He looked up and glared at Paradigm, he might have known.

Out loud Dogma continued, "The card claims both answers are correct. Each was first on a correct answer, thus each gets a point. The score is now 6 to 7, with one more question to go."

Mathematics took notice, “Wait a minute, a score of 6 to 7 means you’ve used up all the cards; 6 + 7 equals 13.” Dogma met his glaze, “I’ve asked 12 questions, the score is 6 to 7, and there is one more card to go.” Continuing, “This is Paradigm’s doing, confront him.”

Reason interrupted, “No need, the card is correct, both answers work.” Curiosity was next to speak, “How can that be? These are single bit questions, only two possible answers, either true or false. It’s not possible for both to be correct.” Reason explained, “If a statement is true then what it asserts is so, therefore since this statement asserts that it is true, if true, what it asserts is so, so true.” Curiosity, “I got that, it’s the…” “Let me finish. But if a statement is false, then what it asserts is not so, therefore since this statement asserts that it is true, if it’s false then what it asserts is not so, and so indeed it is false. Both solutions work.”

Curiosity thought for a moment, mentally replaying Reason’s argument, then brightened, “You’re right, how cool is that!”

Dogma looked at Mathematics, “Can you explain? Why is this form even allowed?”

Mathematics looked a bit uncomfortable. He hemmed then hawed, but everyone kept looking at him, until it was clear he was not getting off the hook. “There is a dirty little secret in the calculational sciences; multi-values are actually allowed.” Stalling, and unconsciously biting his lip, he continued, “We try to avoid them, as they make calculation more difficult to do and equality more difficult to define. We’ve been able to make the log and root functions single valued by fiat, and usually only have to deal with multiple values when the roots of polynomial equations are involved.” He looked up a Paradigm, “You might have skeletons in your closet too, you know.”

Paradigm shrugged, then, “There is one more card to go…”

Theory and Experiment, in rare unison, “What’s for dinner?” obviously trying to change the subject, but Curiosity called them out, “Chicken. I want to see what’s on card 13. My interest is piqued, and I’m feeling lucky.”

Dogma reluctantly picked up the last card, but before reading it, made a mental commitment to read out loud regardless of what it said. He vowed to himself that he would not react, but he knew deep down, that whatever was on this card was going to be some kind of nasty. Taking a deep breath, he read and spoke at the same time, “This statement is false.”

On the other side of the card he saw the answer, or rather answers; both ‘i’ and ‘j’ solve this form.

