# QUIZ

You chat to a stranger on a bus who says he is the father of two children.

"Any daughters?" you ask.

"Yes," he replies, as he leaves.

What is the probability that both his children are girls?

**Answer I:**
He has only told you that one child is a girl. The other child could be either sex. Since boys and girls are roughly equally frequent, the probability the other child is a girl is $\frac{1}{2}$.

**Answer II:**
Since boys and girls are (roughly) equally frequent, and the sex of successive children of a father are (roughly) independent, $\frac{3}{4}$ of all fathers with two children will have at least one girl, and $\frac{1}{4}$ will have two girls. So amongst fathers that have two children of which at least one is a girl, the proportion that have two girls is $\frac{1}{4}$ divided by $\frac{3}{4}$, which is $^1/_3$.

## WHICH ANSWER IS CORRECT?