ABSTRACT: Question # 2 below was a problem from the *Monthly* of the Mathematical Association of America. It was solved by David Burns, who earned his PhD in mathematics from NDSU in 1993. Question #1 will be dispatched rather quickly.

We ask the perennial question:

Which are better, odd numbers or even numbers? We will look at the Euler \( \phi \) –function or totient and ask:

1. If \( n \) is an odd number, and \( \phi(n) = k \), is there an even number \( m \) such that \( \phi(m) = k \), also?
2. If \( n \) is an even number, and \( \phi(n) = k \), is there an odd number \( m \) such that \( \phi(m) = k \), also?

Question #2 will be answered in perhaps a surprising way.

Background definition:
For each positive integer \( n \),

\[
\phi(n) = |\{k \in [1, n] : \gcd(n, k) = 1, k \in \mathbb{Z}\}|,
\]

where \( \mathbb{Z} \) denotes the integers.

But, knowing prime integers is really all the background one needs.