1. Suppose that a, b, and c are positive integers such that not all of them are even, $a < b$, $a^2 + b^2 = c^2$, and $c - b = 289$. What is the smallest possible value for c?

   Answer:

2. If $a, b > 1$ and a^2 is 11 in base b, what is the third digit from the right of b^2 in base a?

   Answer:

3. Find real numbers a, b such that $x^2 - x - 1$ is a factor of $ax^{10} + bx^9 + 1$.

   Answer: