1. Find all the ideals of \( \mathbb{Z} \).

2. Find generators for the kernel of the ring homomorphism \( \mathbb{R}[x, y] \rightarrow \mathbb{R} \) that sends any polynomial in two variables \( f(x, y) \) to \( f(0,0) \).

3. Describe the elements of \( \mathbb{R}[x, y]/(x, y) \). Then, describe the elements of \( \mathbb{Z}[x]/(x^2 + 1) \).