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

2. Find generators for the kernel of the ring homomorphism $\mathbb{R}[x, y] \to \mathbb{R}$ 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 $\mathbb{Z}[x]/(x^2 + 1)$.

Check this box if you would like feedback $\square$