

1. In the problem set that was due today, you proved that if  $R$  is a ring with ideals  $I$  and  $J$  such that  $I + J = R$  and  $IJ = 0$ , then the following map is a ring isomorphism:

$$R \rightarrow R/I \times R/J, \quad r \mapsto (r + I, r + J)$$

Use this result to prove that  $\mathbb{Z}/(12)$  is isomorphic to  $\mathbb{Z}/(3) \times \mathbb{Z}/(4)$ .

2. What are the maximal ideals of  $\mathbb{Z}$ ?

3. Any questions about the upcoming midterm?