Day 25

Internal products

1. In $\mathbf{Z}$, consider $H = \langle 5 \rangle$ and $K = \langle 7 \rangle$. Is $\mathbf{Z} = H \times K$?

2. Let $H = \langle (2,2) \rangle$ inside the group $G = Z_4 \oplus Z_{12}$. Which of the following groups is G/H isomorphic to?

(A) Z_8

(B) $Z_4 \oplus Z_2$

(C) $Z_2 \oplus Z_2 \oplus Z_2$