Preliminary problems. These should be submitted to Gradescope before Thursday discussion.

(P1) Recall from lecture that

$$\mu(n) = \begin{cases} (-1)^k & \text{if } n = p_1 p_2 \cdots p_k \text{ for } p_1, \ldots, p_k \text{ distinct primes;} \\ 0 & \text{otherwise.} \end{cases}$$

Use this to verify $\mu(nm) = \mu(n)\mu(m)$ whenever $\gcd(n, m) = 1$.

Hint: there should be 4 cases, based on whether n and/or m have repeated prime factors.

(P2) Draw the Hasse diagram for the divisibility poset D_{36}.