Hint - Assignment 2

a multiple of p

$$\sum_{k \in \{0, p, 2p, \ldots d-p\}} e^{2\pi i k\ell/d} = \begin{cases} d/p & \text{if } \ell \text{ is an integer multiple of } d/p \\ 0 & \text{else} \end{cases}$$

↳ integer multiples of p

Prove it to get half a bonus point!

Hint for proving the hint :)

Look at: roots of unity (Lecture notes 5.2)

Alternative: geometric series & L'Hôpital's rule