Quiz/Attendance 2M

Firstname Lastname ID#

1. Suppose we are working in $\mathbb{Z}_{10}$, the additive group of integers mod 10.

Then $5 + 7 + 9 = \boxed{}$ (mod 10).

Write your answer as it is conventionally written in $\mathbb{Z}_{10}$.

2. Suppose we are working in $\mathbb{Z}_{11}^\ast$, the multiplicative group of integers modulo 11.

Then $5 \cdot 7 = \boxed{}$ (mod 11).

Write your answer as it is conventionally written in $\mathbb{Z}_{11}^\ast$.

3. Let $X, C \in \{0, 1\}^{128}$ be 128-bit strings. How many values $Y \in \{0, 1\}^{128}$ are there such that $X \oplus Y = C$?

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