USE LATEX!

20160915

MAT240: $\mathbb{Z}_k$

FIELD AXIOMS

SET F WITH AT LEAST TWO DISTINCT ELEMENTS $0 \wedge 1$ AND TWO OPERATIONS ON THEM:

$+ : F \times F \to F$, $\cdot : F \times F \to F$ SUCH THAT $\forall a, b, c \in F$:

	$\oplus$	$\odot$
F_1	$a \oplus b = b \oplus a$	$a \odot b = b \odot a$
F_2	$(a \oplus b) \oplus c = a \oplus (b \oplus c)$	$a(bc) = (ab)c$
EXISTENCE OF A NEUTRAL ELEMENT F_3	$a \oplus 0 = a$	$a \cdot 1 = a$
EXISTENCE OF AN INVERSE ELEMENT F_4	$\forall a \, \exists b : a \oplus b = 0$	$\forall a, a \neq 0 \, \exists b = ab = 1$
F_5	$a(b \oplus c) = ab \oplus ac$	