Γ
$_2()$
k
$_k(\Gamma)$
Γ
$N \in$
prin-
ci-
pal
con-
gru-
ence
sub-
group
level
N

$$\Gamma(N) = \{ (a) bcd \in_2 () (a) bcd \equiv (1) 001 \pmod N \} .$$

con-
gru-
ence
sub-
group
$\Gamma \subset_2$
$()$
$\Gamma(N) \subset$
Γ
$N \in$
Γ
level
N
$\Gamma(N)$
$_2() \to_2$
$(/N)$
$_2()$
$_2()$
$\gamma =$
$(abcd)$
$_2()$
$fH \to$
$\tau \in$
H
fac-
tor
of
au-
to-
mor-
phy

$$\mathrm{j}(\gamma,\tau) c\tau+d$$

$k \in$
$f[\gamma]_k H \to$

$$f[\gamma]_k(\tau) \det(\gamma)^{k/2} \mathrm{j}(\gamma,\tau)^{-k} f(\gamma\tau).$$

$\gamma, \gamma' \in_2$
$()$
$\tau \in$
H
$\mathrm{j}(\gamma\gamma',\tau) =$
$\mathrm{j}(\gamma,\gamma'(\tau))\mathrm{j}(\gamma',\tau)$
$f :$
$H \to$
$f[\gamma\gamma']_k =$
$(f[\gamma]_k)[\gamma']_k$
$fH \to$
Γ
Γ
$(1 * 01) \in$
Γ
$h \in$
$(1h01) \in$
Γ
$\tau \in$
H
$q_h =$
$\exp(2\pi i\tau/h)$
f
h-
periodic
$f(\tau+$
$h) =$
$f(\tau)$
$\tau \in$
H
$h =$
1
$fB\backslash$
$\{0\} \to$
$f(\tau) =$
$\tilde{f}(q_h)$
τ
f
$\tilde{}$