4.1.10 G □□□□□□□□□.

(1) G □□□□□□□□□□□□□□.

□□□□□□□□□□□□□□□□□□□□□.
$G = {\pm1, \pm{i}, \pm{j}, \pm{k}}$
$ijk = i^2 = i^2 = k^2 = -1$
$ij = -ji = k, jk = -kj = i, ki = -ik = j$

□□ 4.1.27 □□□□□□ $C(x)$ □□□□□□□□□□.
$C(x) = {y\in{G} | y = gxg^{-1}, g \in{G}}$

$C(1) = {1}$
$C(-1) = {-1}$
$C(\pm{i}) \ni \begin{cases} \pm{i} & \ (g= \pm1, \pm{i}) \ \mp{i} & \ (g= \pm{j}, \pm{k}) \end{cases}$
$C(\pm{j}) \ni \begin{cases} \pm{j} & \ (g= \pm1, \pm{j}) \ \mp{j} & \ (g= \pm{k}, \pm{i}) \end{cases}$
$C(\pm{k}) \ni \begin{cases} \pm{k} & \ (g= \pm1, \pm{k}) \ \mp{k} & \ (g= \pm{i}, \pm{j}) \end{cases}$

$\therefore □□□□ {1}, {-1},\pm{i}, {\pm{j}}, {\pm{k}}$

(2) 1, i □□□□□□□□□□.

□□ 4.1.26 (2) □□□□□□□□G□□□□H□□□□□□□□□□□□□□.
$Z_G(H) = {g\in{G} | hg = gh, \forall{h} \in{H}}$

□□□□□□□□□□□□□□□□□□□□□□□□□□□ 1, i □□□□□□□□ G □□□□□□□□□□□.
$H_1 = {1}$
$H_i = {1, i, -1 -i}$

$Z_G(H_1) = G$ □□□□□□□(1) □ $C(1) = {1}$ □□□□□□□□□□□□.
□□□□□□$|C(1)| = 1 = |G|/|Z_G(H_1)| = 8 / 8$ □□□□□□□.

$Z_G(H_i) = {\pm1, \pm{i}}$ □□□□□□□(2) □
$C(1) = {1}$
$C(-1) = {-1}$
$C(\pm{i}) \ni \begin{cases} \pm{i} & \ (g= \pm1, \pm{i}) \ \mp{i} & \ (g= \pm{j}, \pm{k}) \end{cases}$
□□□□□□□□□□□□.
□□□□$|C(i)| = 2 = |G|/|Z_G(H_i)| = 8 / 4$ □□□□□□□□□□□.