

$$n_1,\ldots,n_k;a_1,\ldots,a_k$$

$$n_i\!\perp\! n_j i\neq j, n=n_1n_2\cdots n_k$$

$$\exists ! a\; (red0\leq a < n): a\equiv a_i\pmod{n_i}.$$

$$a\leftrightarrow (a_1,a_2,\ldots,a_k)$$

$$a\equiv a'\pmod{n_i}n\mid a\!-\!a'.$$

$$\begin{array}{l} \overrightarrow{\prod}_{1\leq i\leq k}[0,a_i)\\ \overset{f}{\underset{a}{\mapsto}}\\ (a\bmod\\ n_1,\ldots,a\bmod\\ n_k)\\ \overset{f}{\underset{f}{\exists}}a:f(a)=(a_1,\ldots,a_k). \end{array}$$

$$\begin{array}{l} \overline{\overline{a_1}}\\ (\bmod\;n_1)\\ \overline{\overline{a_2}}\\ (\bmod\;n_2) \end{array}$$

$$(1)a=a_1\!+\!n_1y$$

$$x=a_1\!+\!n_1n_1^{-1}(a_2\!-\!a_1)\pmod{n_1n_2}$$

$$\begin{array}{l} \overline{\overline{a_1}}\\ (\bmod\;n_1)\\ \overline{\overline{a_2}}\\ (\bmod\;n_2) \end{array}$$

$$n_1\!\perp\! n_2n_1n_1'+n_2n_2'=1$$

$$x=a_1n_1n_1'+a_2n_2n_2'\pmod{n_1n_2}$$

$$\begin{array}{l} \overline{\overline{x}}\\ (\bmod\;n_i),x\equiv\\ 0\\ (\bmod\;n_j)\;(i\neq\\ j) \end{array}$$

$$x=M_i(M_i^{-1}\bmod n_i)x=M_iM_i^{-1}\pmod{n}$$

$$\begin{array}{l} \overline{\overline{x_i}}\\ (\bmod\;n_i),x\equiv\\ 0\\ (\bmod\;n_j)\;(i\neq\\ j) \end{array}$$

$$x=a_iM_iM_i^{-1}\pmod{n}$$

$$\begin{array}{l} \overline{\overline{a_i}}\\ (\bmod\;n_i),\forall 1\leq\\ i\leq\\ k \end{array}$$

$$a=\sum_{1\leq i\leq k}a_iM_iM_i^{-1}\pmod{n}$$

$$\cdot$$

$$a\leftrightarrow (a_1,a_2,\ldots,a_n)$$

$$\begin{array}{l} \pm b\leftrightarrow\\ (a_1\pm\\ b_1,a_2\pm\\ b_2,\ldots,a_n\pm\\ b_n)\\ a\times\\ b\leftrightarrow\\ (a,\times \end{array}$$