$$p(x)\cdot q(x) \mapsto \{ (x_0, p(x_0)\cdot q(x_0)), \ldots , \}$$

$$\begin{pmatrix} & & \\ & & \\ & & \end{pmatrix} \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$p(x)\cdot q(x) \mapsto \{ (x_0, p(x_0)\cdot q(x_0)), \dots\dots, \quad \}$$

$$\begin{pmatrix} \quad & \quad & \quad \\ & & \\ & & \end{pmatrix} \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$p(x)\cdot q(x) \mapsto \{ (w_0, p(w_0)\cdot q(w_0)), \dots , \quad \}$$

$$\omega_n^0, \omega_n^1, \dots, \omega_n^{n-1}$$

$$p(\omega_n) = \sum_{i=0}^{n-1} a_0$$

$$\begin{pmatrix} 1 & \cdots & 1 \\ & & \\ & & \end{pmatrix} \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$p(x)\cdot q(x) \longmapsto \{ (w_0, p(w_0)\cdot q(w_0)), \ldots , \}$$

$$w_n^0, w_n^1, \ldots, w_n^{n-1}$$

$$p(w_n) = \sum_{i=0}^{n-1} a_i \cdot w_n^i$$

$$\begin{pmatrix} 1 & \ldots & & 1 \\ 1 & w_n & w_n^2 \ldots & w_n^{n-1} \\ & & & \\ & & & \end{pmatrix} \begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$p(x)\cdot q(x) \longmapsto \{ (\omega_0, p(\omega_0)\cdot q(\omega_0)), \ldots\ldots, \quad \}$$

$$\omega_n^0, \omega_n^1, \ldots, \omega_n^{n-1}$$

$$p(\omega_n) = \sum_{i=0}^{n-1} a_i \cdot \omega_n^i$$

$$\begin{pmatrix} 1 & \ldots & & 1 \\ 1 & \omega_n & \omega_n^2 \ldots & \omega_n^{n-1} \\ & & & \\ & & & \end{pmatrix} \begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \cdot F_n = I_n$$

$$F_n \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \cdot F_n = I_n$$

$$\overset{I_n}{\overbrace{F_n \cdot F_n}} \cdot \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = F_n \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \cdot F_n = I_n$$

$$\overbrace{F_n \cdot F_n}^{I_n} \cdot \underbrace{\begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix}} = F_n \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \cdot F_n = I_n$$

$$\overbrace{F_n \cdot F_n}^{I_n} \cdot \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = F_n \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n \cdot F_n = I_n$$

$$\overset{I_n}{\cancel{F_n} \cdot F_n} \cdot \begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = F_n \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)} \qquad F_n \cdot F_n = I_n$$

$$w_n^0, w_n^1, w_n^2$$

$$\overbrace{\cancel{F_n} \cdot F_n}^{I_n} \cdot \begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = F_n \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)} \qquad F_n \cdot F_n = I_n$$

$$F_n^*[i,j]$$

$$w_n^0, w_n^1, w_n^2$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)}$$

$$F_n \cdot F_n = I_n$$

$$F_n^*[i,j] = \overline{F_n[j,i]}$$

$$w_n^0, w_n^1, w_n^2$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)}$$

$$F_n \cdot F_n = I_n$$

$$F_n^*[i,j] = \overline{F_n[j,i]}$$

$$= \overline{w_n^{(j-1)\cdot(i-1)}}$$

$$w_n^0, w_n^1, w_n^2$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)}$$

$$F_n \cdot F_n = I_n$$

$$F_n^*[i,j] = \overline{F_n[j,i]}$$

$$= \overline{w_n^{(j-1)\cdot(i-1)}}$$

$$\overline{w_n^k} = w_n^{-k}$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)}$$

$$F_n \cdot F_n = I_n$$

$$F_n^*[i,j] = \overline{F_n[j,i]}$$

$$= \overline{w_n^{(j-1)\cdot(i-1)}}$$

$$\overline{w_n^k} = w_n^{-k}$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = \overline{F_n[j,i]}$$

$$= \overline{w_n^{(j-1)\cdot(i-1)}}$$

$$F_n \cdot F_n = I_n$$

$$\overline{w_n^k} = w_n^{-k}$$

$$w_n^k = e^{\frac{2\pi i}{n}\cdot k}$$

$$F_n[i,j] = \left(w_n^{i-1}\right)^{j-1} = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = \overline{F_n[j,i]}$$

$$= \overline{w_n^{(j-1)\cdot(i-1)}}$$

$$F_n \cdot F_n = I_n$$

$$\overline{w_n^k} = w_n^{-k}$$

$$\overline{w_n^k} = \overline{e^{\frac{2\pi i}{n}\cdot k}}$$

$$= \overline{\cos\left(\frac{2\pi k}{n}\right) + \sin\left(\frac{2\pi k}{n}\right)\cdot i}$$

$$= \cos\left(\frac{2\pi k}{n}\right) - \sin\left(\frac{2\pi k}{n}\right) i$$

$$w_n^{-k} = \cos\left(-\frac{2\pi k}{n}\right) + \sin\left(-\frac{2\pi k}{n}\right) i$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* \cdot F_n = n \cdot I_n$$

$$F_n \cdot F_n = I_n$$

$$\overline{w_n^k} = w_n^{-k}$$

$$\overline{w_n^k} = \overline{e^{\frac{2\pi i}{n}\cdot k}}$$

$$= \overline{\cos\left(\frac{2\pi k}{n}\right) + \sin\left(\frac{2\pi k}{n}\right)\cdot i}$$

$$= \cos\left(\frac{2\pi k}{n}\right) - \sin\left(\frac{2\pi k}{n}\right) i$$

$$w_n^{-k} = \cos\left(-\frac{2\pi k}{n}\right) + \sin\left(-\frac{2\pi k}{n}\right) i$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

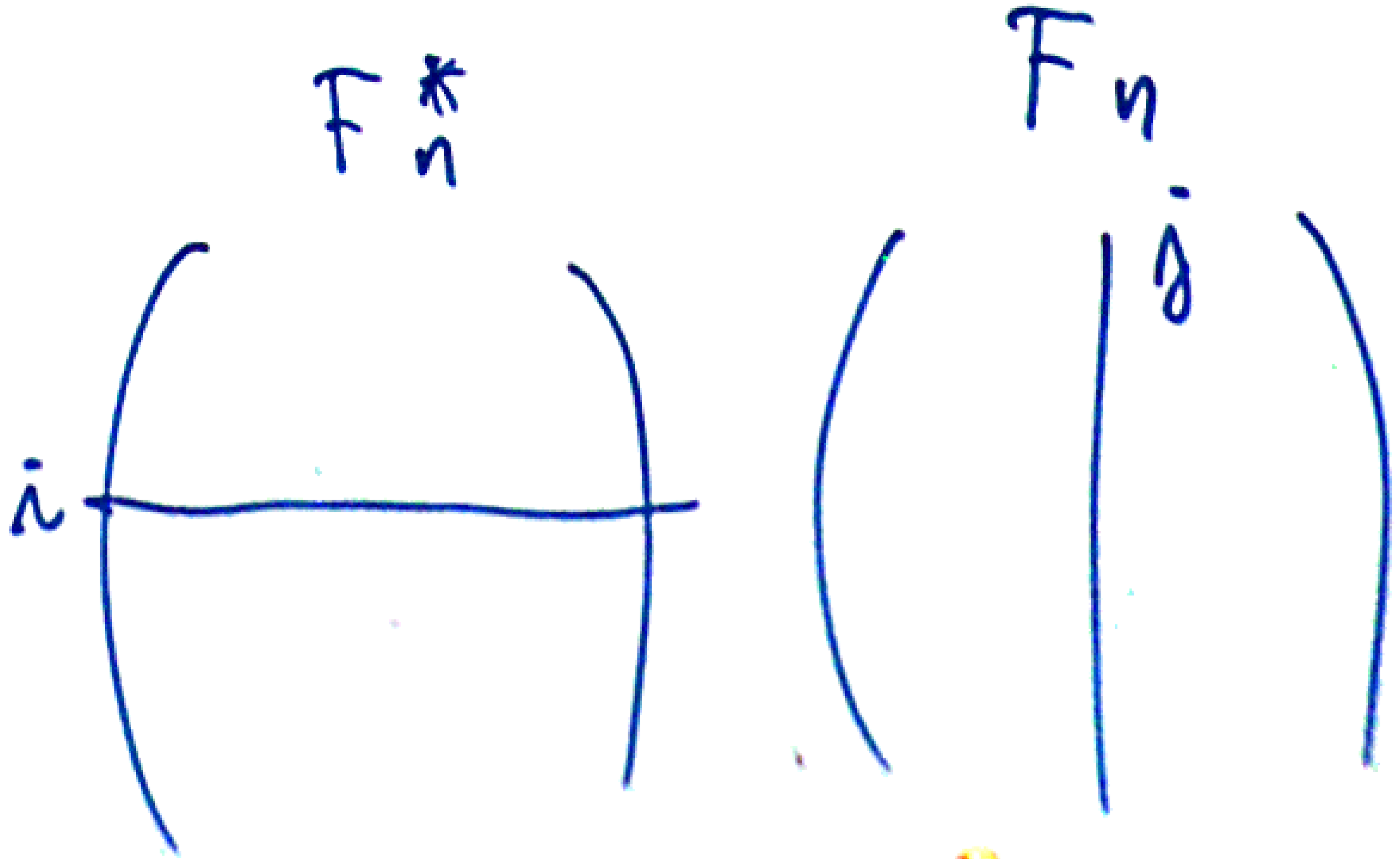
$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* \cdot F_n = n \cdot I_n$$

$1 \le i,j \le n \qquad i \neq j$

$$(F_n^* \cdot F_n)[i,j] = 0$$

$\|$



$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

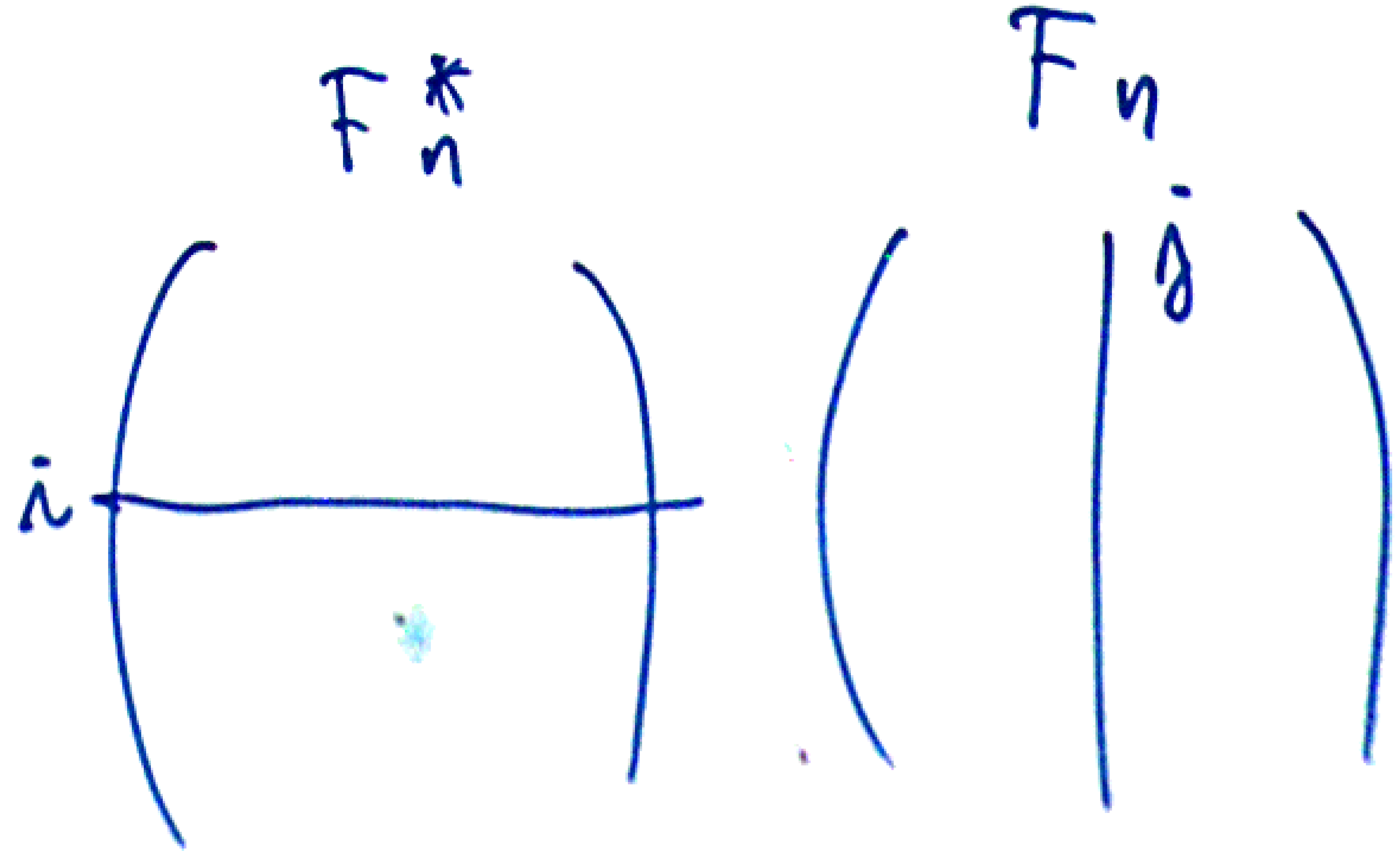
$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* \cdot F_n = n \cdot I_n$$

$$1 \le i,j \le n \qquad i \ne j$$

$$(F_n^* \cdot F_n)[i,j] = 0$$

$$\parallel$$



$$= \sum_{k}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

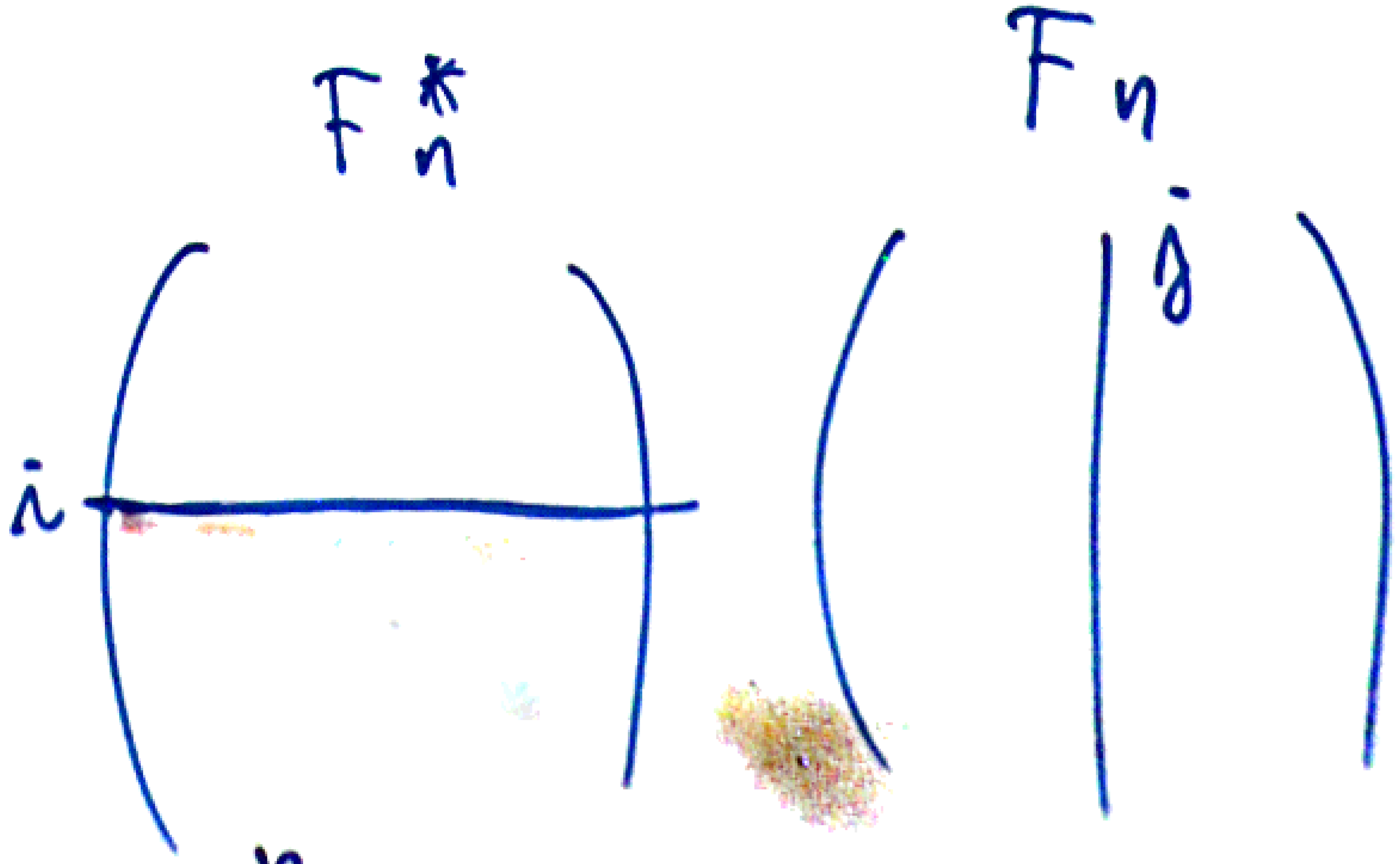
$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* \cdot F_n = n \cdot I_n$$

$$1 \le i,j \le n \qquad i \ne j$$

$$(F_n^* \cdot F_n)[i,j] = 0$$

$$\parallel$$



$$= \sum_{k=1}^{n}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

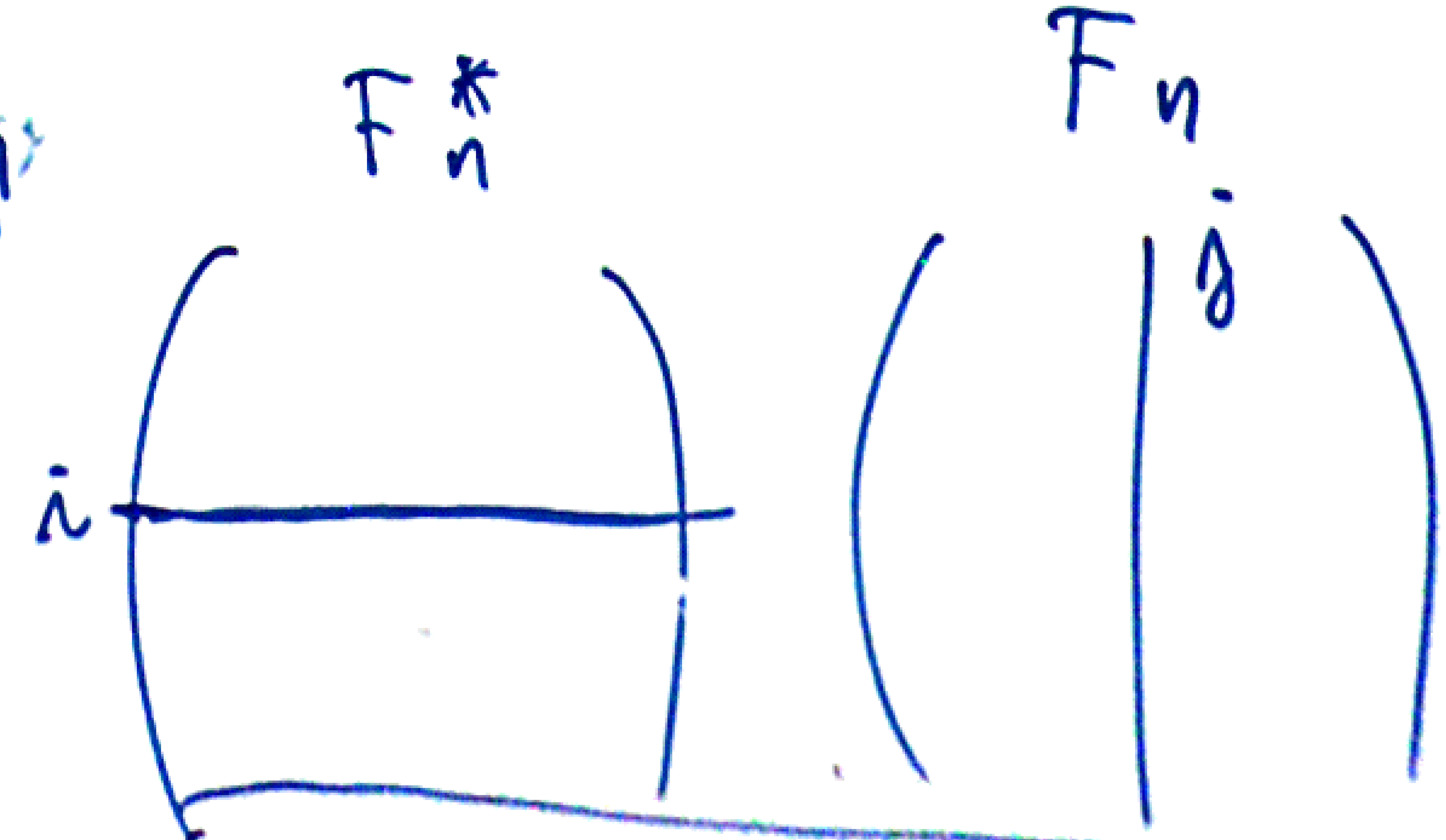
$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* \cdot F_n = n \cdot I_n \qquad A = F_n^* \cdot F_n$$

$1 \le i,j \le n \qquad i \ne j$

$$(F_n^* \cdot F_n)[i,j] = 0$$

$\Vert$



$$= \boxed{\sum_{k=1}^{n} F_n^*[i,k] \cdot F_n[k,j]}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)} \qquad 1 \le i,j \le n \qquad i \neq j$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)} \qquad (F_n^* \cdot F_n)[i,j] = 0$$

$$\qquad\qquad\qquad\qquad // $$

$$F_n^* \qquad\qquad F_n$$

$$\sum_{k=1}^{n} w_n^{-(i-1)\cdot(k-1)} \cdot w_n^{(k-1)\cdot(j-1)}$$

$$= \sum_{k=1}^{n} \left(w_n^{-(i-1)+j-1}\right)^{k-1} = \sum_{k=1}^{n} \left(w_n^{j-i}\right)^{k-1}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)} \qquad 1 \le i,j \le n \quad i \neq j$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)} \qquad (F_n^* \cdot F_n)[i,j] = 0$$

$$\qquad\qquad\qquad\qquad \parallel$$

$$F_n^* \qquad F_n$$

$$\sum_{k=1}^{n} w_n^{-(i-1)\cdot(k-1)} \cdot w_n^{(k-1)\cdot(j-1)}$$

$$= \sum_{k=1}^{n} \left(w_n^{-(i-1)+j-1}\right)^{k-1} = \sum_{k=1}^{n} \left(w_n^{j-i}\right)^{k-1}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)} \qquad 1 \le i,j \le n \qquad i \neq j$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)} \qquad (F_n^* \cdot F_n)[i,j] = 0$$

$$\overset{\parallel}{}$$

$$F_n^* \qquad F_n$$

$$\sum_{k=1}^{n} w_n^{-(i-1)\cdot(k-1)} \cdot w_n^{(k-1)\cdot(j-1)}$$

$$= \sum_{k=1}^{n} \left(w_n^{-(i-1)+j-1}\right)^{k-1} = \sum_{k=1}^{n} \left(x \right)^{k-1} = \frac{x^n - 1}{x - 1}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)} \qquad 1 \le i,j \le n \qquad i \neq j$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)} \qquad (F_n^* \cdot F_n)[i,j] = 0$$

$$F_n^* \qquad F_n$$

$$\sum_{k=1}^{n} w_n^{-(i-1)\cdot(k-1)} \cdot w_n^{(k-1)\cdot(j-1)}$$

$$= \sum_{k=1}^{n} \left(w_n^{-(i-1)+j-1}\right)^{k-1} = \sum_{k=1}^{n} \left(w_n^{j-i}\right)^{k-1} = \frac{X^n - 1}{X - 1}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)} \qquad 1 \le i,j \le n \qquad i \neq j$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)} \qquad (F_n^* \cdot F_n)[i,j] = 0$$

$$\qquad\qquad\qquad\qquad // $$

$$F_n^* \qquad\qquad F_n$$

$$\sum_{k=1}^{n} w_n^{-(i-1)\cdot(k-1)} \cdot w_n^{(k-1)\cdot(j-1)}$$

$$= \sum_{k=1}^{n} \left(w_n^{-(i-1)+j-1}\right)^{k-1} = \sum_{k=1}^{n} \left(w_n^{j-i}\right)^{k-1} = \frac{X^n - 1}{X - 1}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)} \qquad 1 \le i,j \le n \qquad i \neq j$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)} \qquad (F_n^* \cdot F_n)[i,j] = 0$$

$$\mathbin{/\!/}$$

$$F_n^* \qquad\qquad F_n$$

$$\sum_{k=1}^{n} w_n^{-(i-1)\cdot(k-1)} \cdot w_n^{(k-1)\cdot(j-1)}$$

$$= \sum_{k=1}^{n} \left(w_n^{-(i-1)+j-1}\right)^{k-1} = \sum_{k=1}^{n} \left(w_n^{j-i}\right)^{k-1} = \frac{X^n - 1}{X - 1}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$n \cdot I_n \cdot \begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = \frac{1}{n} F_n^* \cdot \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$\begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = \frac{1}{n} F_n^* \cdot \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* = F_n \cdot$$

$$\begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = \frac{1}{n} F_n^* \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* = \overline{F_n}$$

$$\begin{pmatrix} F_n^*[1,1] \to 1 \\ \vdots \\ F_n^*[n,1] \to 1 \end{pmatrix} \qquad \begin{pmatrix} F_n[1,1] \to 1 \\ \vdots \\ F_n[n,1] \to 1 \end{pmatrix}$$

$$\begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \frac{1}{n} F_n^* \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* = F_n^{\cdot}$$

$$\left(\begin{matrix} F_n^*[1,1] \to 1 \\ \vdots \\ F_n^*[n,1] \to 1 \end{matrix} \right. \qquad \left(\begin{matrix} F_n[1,1] \to 1 \\ \vdots \\ F_n[n,1] \to 1 \end{matrix} \right.$$

$$\begin{pmatrix} a_0 \\ \vdots \\ a_{n-1} \end{pmatrix} = \frac{1}{n} F_n^* \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* = F_n \cdot$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$\begin{pmatrix} a_0 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} = \frac{1}{n} F_n^* \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* = F_n \cdot$$

$$F_n$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$\Big(\quad \Big)\Big(\quad$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$F_n^* = F_n \cdot$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$F_n \begin{pmatrix} \; \end{pmatrix} \begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1,n+2-j] \\ \vdots \\ \vdots \\ F_n[n,n+2-j] \end{pmatrix}$$

$$F_n \begin{pmatrix} \\ \\ \\ \end{pmatrix} \underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

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$2 \cdot x^2 + 3 \cdot x + 2$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

F_n

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$\underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

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$2 \cdot x^2 + 3 \cdot x + 2$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

F_n

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$\begin{pmatrix} \; \end{pmatrix} \underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$F_n[i,j] = \omega_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = \omega_n^{-(i-1)(j-1)}$$

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$2 \cdot x^2 + 3 \cdot x + 2$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

$$F_n$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$\underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

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$2\cdot x^2+3\cdot x+2$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

F_n

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1,n+2-j] \\ \vdots \\ F_n[n,n+2-j] \end{pmatrix}$$

$$\begin{pmatrix} \\ \\ \end{pmatrix} \underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

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$2 \cdot x^2 + 3 \cdot x + 2$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

F_n

$$\underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

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$2\cdot x^2 + 3\cdot x + 2$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

F_n

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

$$\begin{pmatrix} \\ \\ \end{pmatrix} \underbrace{\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}}$$

$$F_n[i,j] = w_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = w_n^{-(i-1)(j-1)}$$

232

$$2\cdot x^2 + 3\cdot x + 2$$

$$\begin{pmatrix} y_0 \\ y_{n-1} \\ \vdots \\ y_1 \end{pmatrix}$$

$$F_n$$

$$\begin{pmatrix} F_n^*[1,j] \\ \vdots \\ F_n^*[n,j] \end{pmatrix} = \begin{pmatrix} F_n[1, n+2-j] \\ \vdots \\ F_n[n, n+2-j] \end{pmatrix}$$

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F_n

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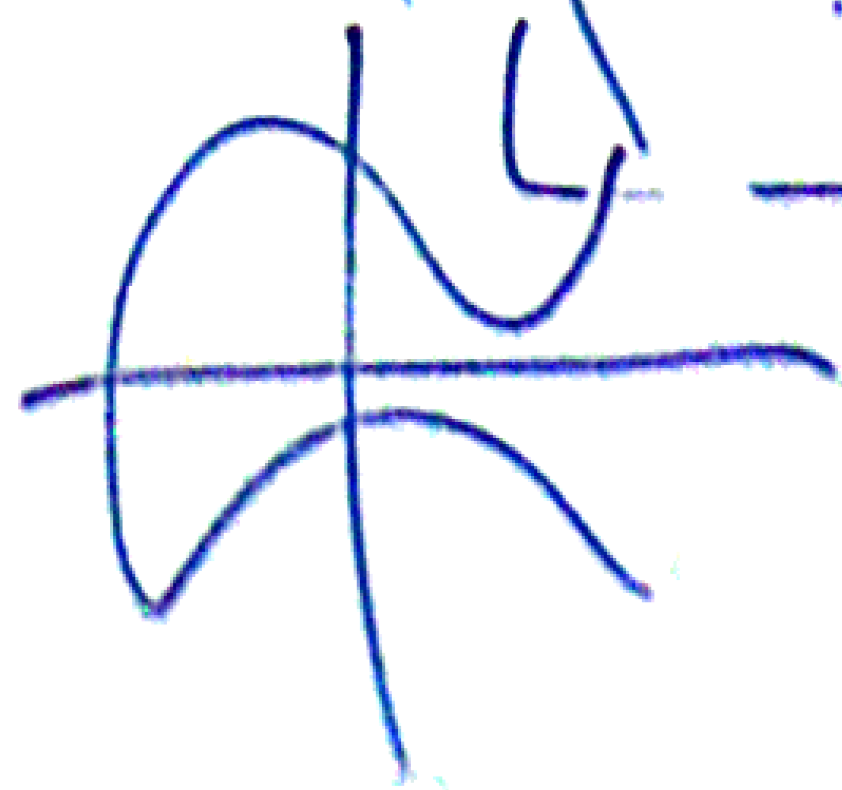

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232

$2\cdot x^2+3\cdot x+2$

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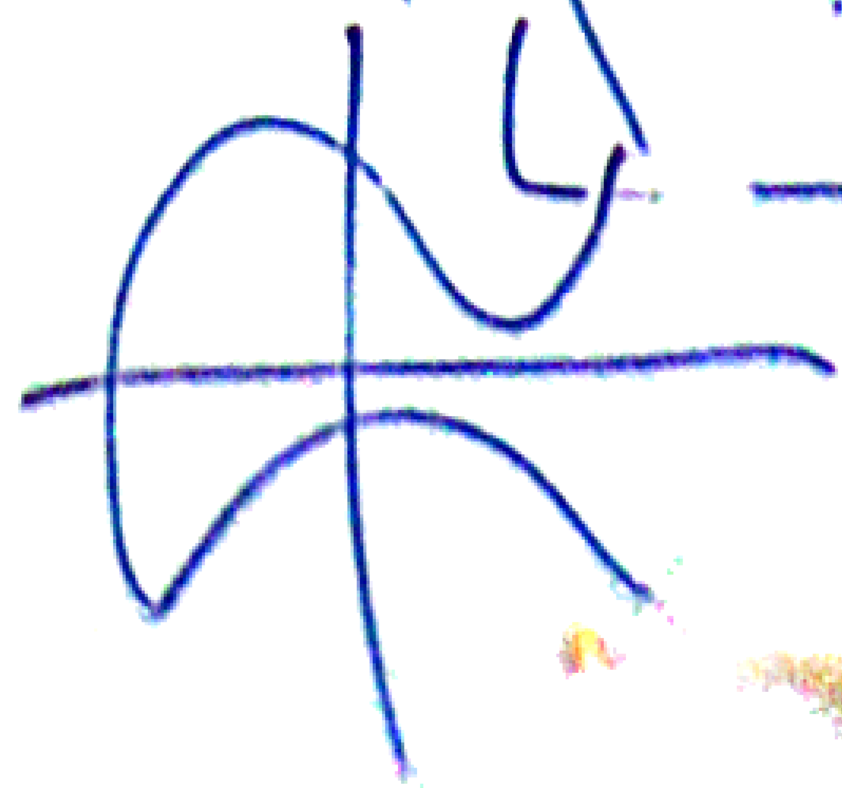
$$\begin{pmatrix} \quad \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ \vdots \\ y_{n-1} \end{pmatrix}$$



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232

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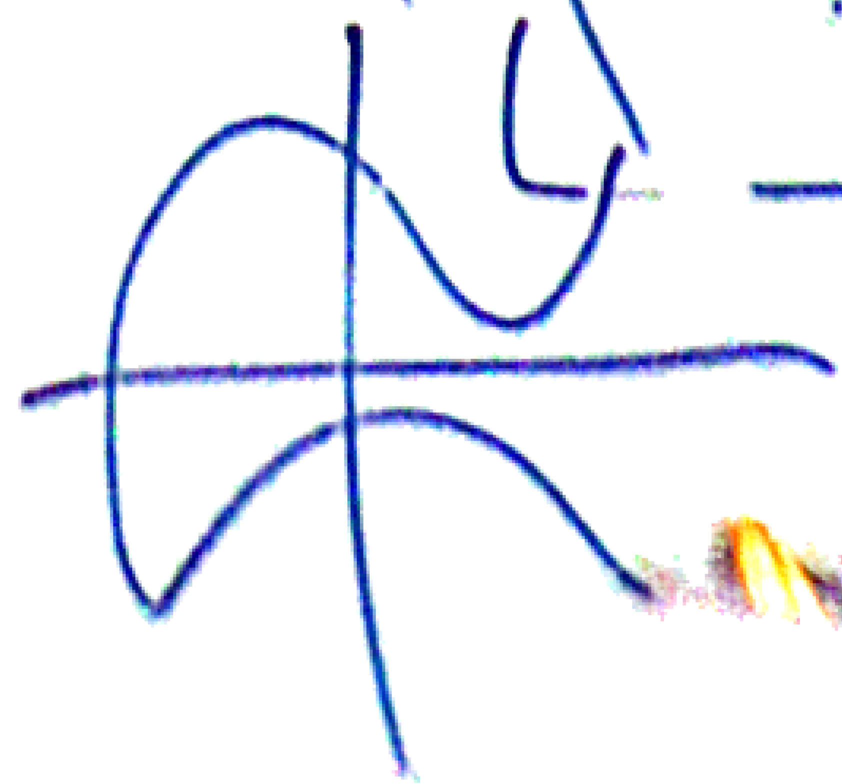
$$\begin{pmatrix} \\ \\ \\ \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \begin{pmatrix} y_0 \\ \vdots \\ y_{n-1} \end{pmatrix}$$



$$F_n[i,j] = \omega_n^{(i-1)\cdot(j-1)}$$

$$F_n^*[i,j] = \omega_n^{-(i-1)(j-1)}$$

2 3 2

$2\cdot x^2 + 3\cdot x + 2$

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F_n

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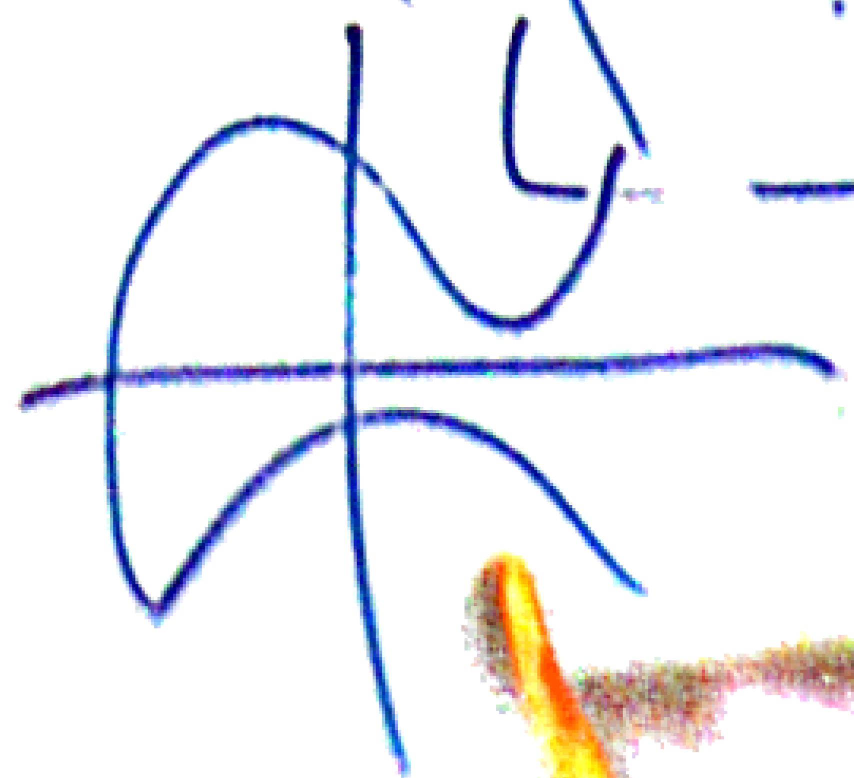

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232

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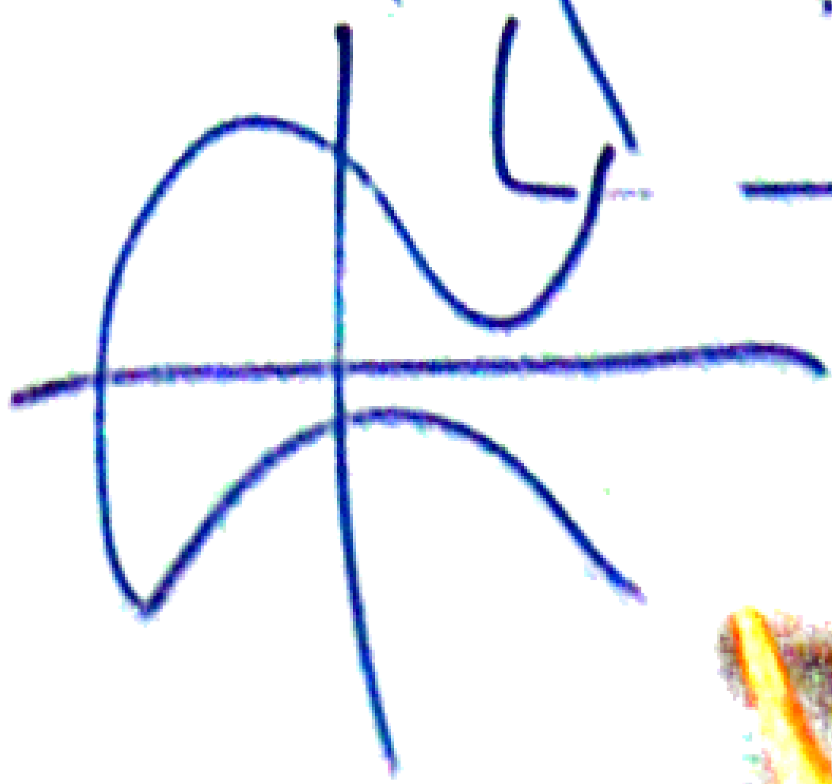

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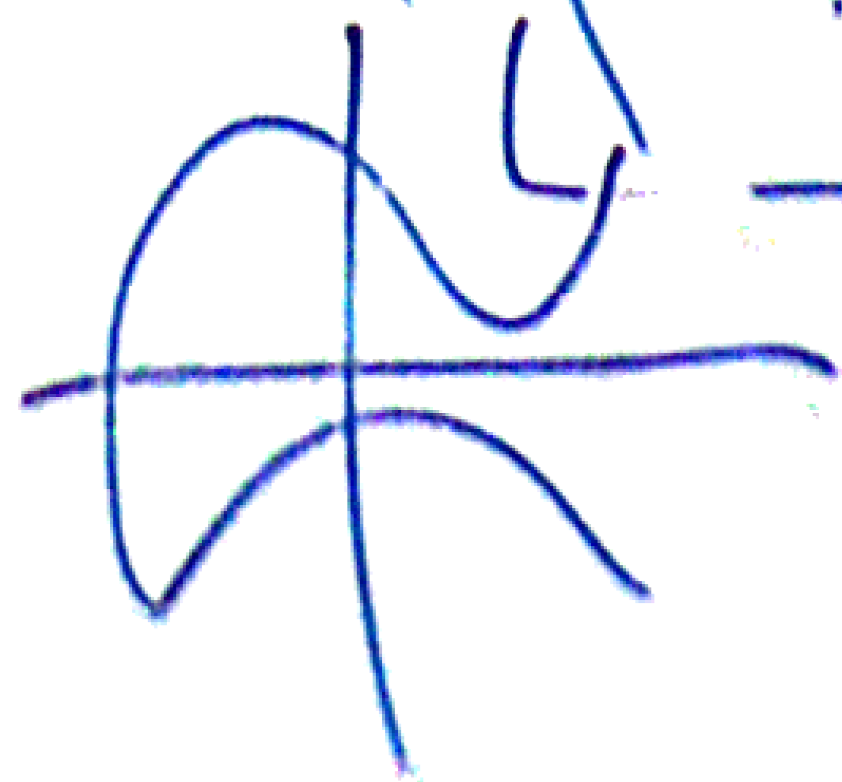

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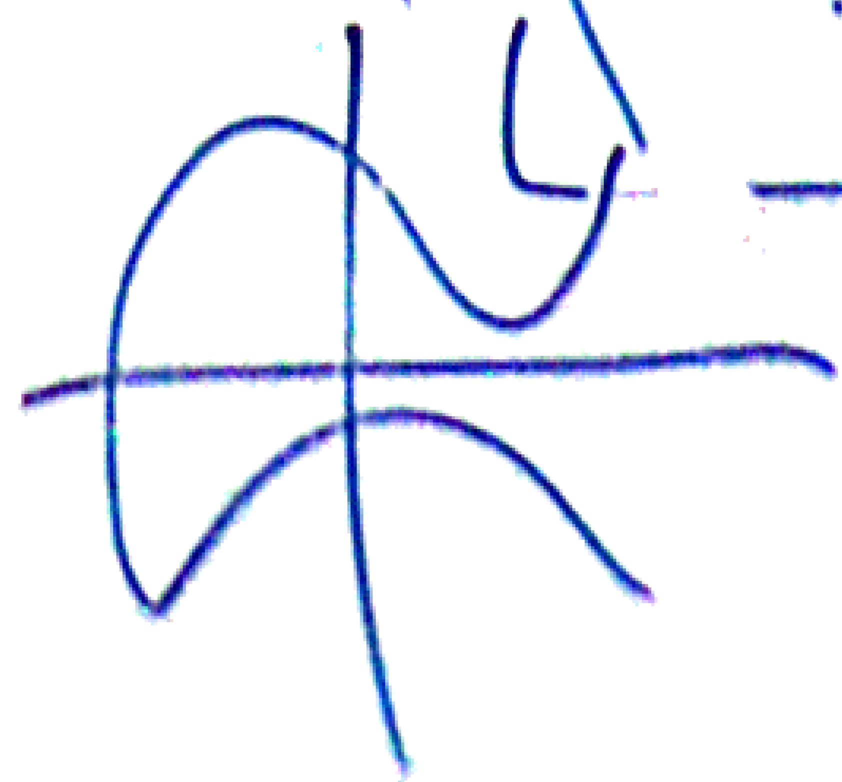

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