$$\begin{pmatrix} a_{11} & a_{12} & a_{13} & \cdots & a_{1k} & \cdots & a_{1n} & b_1 \\ a_{21} & a_{22} & a_{23} & \cdots & a_{2k} & \cdots & a_{2n} & b_2 \\ \vdots & \vdots & \vdots & \ddots & \vdots & \ddots & \vdots & \vdots \\ a_{n1} & a_{n2} & a_{n3} & \cdots & a_{nk} & & a_{nn} & b_n \end{pmatrix}$$

$$(2n+1)(n-1) \qquad \sum_{i=1}^{m} i = \frac{m(m+1)}{2}$$

$$\sum_{i=1}^{n} (2n+1)(n-i)$$

$$\frac{m(m+1)(2m+1)}{6}$$

$$\sum_{i=1}^{m} i^2 =$$

$$\sum_{i=1}^{n-1}\left[2i^2 + (-4n-3)i + (2n^2+3n)\right]$$

$$2\sum_{i=1}^{n-1} i^2 + (-4n-3)\sum_{i=1}^{n-1} i + (2n^2+3n)\sum_{i=1}^{n-1} 1 \qquad m=n-1$$

$$2\,\frac{m(m+1)(2m+1)}{6} + (-4n-3)\,\frac{m(m+1)}{2} + (2n^2+3n)(m)$$

$$2\,\frac{m(2m^2+2m+m+1)}{6} + (-4n-3)\,\frac{(n-1)(n)}{2} + 2n^3+3n^2-2n^2-3n$$

$$2\,\frac{(2m^3+2m^2+m^2+1)}{6} + (-4n-3)\,\frac{(n^2-n)}{2} + 2n^3+n^2-3n$$

$$\frac{(2m^3+3m^2+1)}{3} + \frac{-4n^3-3n^2-4n^2-3n}{2} + 2n^3+n^2-3n$$

$$\frac{(2(n-1)^3+3(n-1)^2+1)}{3} = \frac{2(n^3-3n^2+3n-1)}{3} - \frac{4n^3-3n^2-4n^2-3n}{2} + 2n^3+n^2-3n$$

$$(2(n+1-i)+1)(n-i)$$
$$=(2n+2-2i+1)(n-i)$$
$$=(2n+3-2i)(n-i)$$
$$=2n^2-2ni+3n-3i-2ni+2i^2$$
$$=2n^2+2i^2+3n-3i-4ni$$
$$=2i^2+i(-4n-3)+2n^2+3n$$

$$\boxed{\frac{2n^3-3n^2+3n-1}{3} - \frac{4n^3-3n^2-4n^2-3n}{2} + 2n^3+n^2-3n}$$

$$\frac{2n^3}{3} - \cancel{n^2} + \frac{n}{3} - \cancel{2n^3} + \frac{n^2}{2} + \frac{3n}{2} + \cancel{2n^3} \cancel{+n^2} - 3n$$

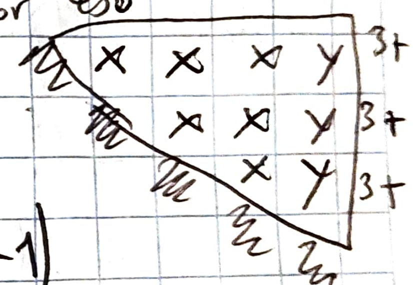
$$= \frac{2n^3}{3} + \frac{n^2}{2} - \frac{7n}{6}$$

para $A_{3\times3} \to \frac{2}{3}(3)^3 + \frac{1}{2}(3)^2 - \frac{7}{6}(3)$

$$= 18 + \frac{9}{2} - \frac{7}{2} = 18 + 1 = 19$$

Para la parte de Gauss

En clase vimos los 3 que se necesitaban para cada paso de Jordan, por eso son 3.



Para Jordan $\sum_{i=1}^{n-1} 3(i-1)$

$$3\left(\left(\frac{n-1(n-1+1)}{2}\right)-1\right)$$

$$3\left(\left(\frac{n-1(n)}{2}\right)-1\right) = 3\left(\frac{n^2-n}{2}\right)-1 = 3\left(\frac{n^2-n}{2}-1\right)$$

$$\boxed{\frac{3n^2}{2} - \frac{3n}{2} - 3}$$