

3.1, 3.2 sept 1866
 $\begin{matrix} + & - & + \\ - & + & - \\ + & - & + \end{matrix}$

Ex 1) Compute the determinant of $\begin{pmatrix} 1 & 0 & 2 \\ 1 & 2 & 1 \\ 1 & 0 & 1 \end{pmatrix} = A$

2nd col

$$\det(A) = -0 \begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix} + 2 \begin{vmatrix} 1 & 2 \\ 1 & 1 \end{vmatrix} - 0 \begin{vmatrix} 1 & 2 \\ 1 & 1 \end{vmatrix}$$

$$= 0 + 2((1)(1) - (1)(2)) + 0$$

$$\det(A) = -2$$

Ex 2) Compute the determinant of $\begin{pmatrix} 1 & 3 & 0 & 1 \\ 0 & 2 & 0 & 0 \\ 2 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 \end{pmatrix} = A$

$$\det(A) = 0 + 0 + 0 + 0 = 0$$

Ex 3) Compute the determinant of $\begin{pmatrix} 1 & 3 & 2 \\ 0 & 1 & 1 \\ 2 & 0 & 1 \end{pmatrix} = A$

$$\det(A) = 1 \begin{vmatrix} 1 & 1 \\ 0 & 1 \end{vmatrix} - 0 \begin{vmatrix} 3 & 2 \\ 0 & 1 \end{vmatrix} + 2 \begin{vmatrix} 3 & 2 \\ 1 & 1 \end{vmatrix}$$

$$= 1 + 0 + 2(3(1) - 2(1)) = 3$$

Ex 4) Compute the determinant of $\begin{pmatrix} 2-\lambda & 1 \\ 1 & 2-\lambda \end{pmatrix} = A - \lambda I$

~~det(A)~~

$$\det(A - \lambda I) = (2-\lambda)^2 - 1$$