



$$\textcircled{1} f(x) = x^2 - 2x + 1 \quad A = \begin{bmatrix} 1 & -2 & 1 \end{bmatrix}$$

$$f'(x) = 2x - 2$$

$$f'(1) = 0$$

$$f'(2) = 2$$

$$f'(3) = 4$$

$$x^2 - 2x + 1 = y$$

$$(x-1)^2 = y$$

$$x-1 = y^{\frac{1}{2}}$$

$$x = y^{\frac{1}{2}} + 1$$

$$S(x) = \sqrt{x} + 1$$



$$f(1) = 0 \quad S(1) = 2$$

$$f(2) = 1 \quad g(2) = \sqrt{2} + 1 \approx 2.41$$

$$f(3) = 4 \quad g(3) = \sqrt{3} + 1 \approx 2.73$$

$$\textcircled{2} f(n) = \frac{2+n^2}{1+n^2}$$

$$\sum_{n=0}^{\infty} \frac{2+n^2}{1+n^2}$$

$$\lim_{n \rightarrow \infty} \frac{2+n^2}{1+n^2} = 1$$

$$\textcircled{6} \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & 3 \\ 1 & 3 & 6 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{array}{r} 1 \ 1 \ 1 \\ -1 \ 2 \ 3 \\ \hline 0 \ -1 \ -2 \end{array} \quad \begin{array}{r} 1 \ 1 \ 1 \\ -1 \ 2 \ 3 \\ \hline 0 \ -1 \ -2 \end{array}$$

$$\begin{bmatrix} 0 & -1 & -2 \\ 0 & -2 & -5 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{array}{r} -2 \ (-1 \ -2) \\ -2 \ -5 \\ \hline 0 \ -1 \end{array}$$

$$\begin{bmatrix} 0 & -1 & -2 \\ 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{array}{r} 1 \ 1 \\ 0 \ -1 \ 2 \\ \hline 1 \ 0 \ -1 \end{array}$$

$$\begin{bmatrix} 0 & 0 & -1 \\ 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{array}{r} -1 \ (-0 \ -1) \\ -1 \ 0 \\ \hline -1 \ 0 \ -1 \end{array}$$

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} 1 & -1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \begin{array}{r} -1 \ 0 \ -1 \\ -1 \ 0 \ -1 \\ \hline 1 \ 0 \ 0 \end{array}$$