

Menentukan Invers Matriks dengan Matriks Adjoint

Penjelasan halaman 4

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 2 & 1 \\ 4 & 3 & 1 \end{pmatrix}$$

Berdasarkan halaman 2

$$C_{11} = -1$$

$$C_{12} = 2$$

$$C_{13} = -2$$

Nilai C_{ij} lainnya adalah sebagai berikut.

$$C_{21} = (-1)^{2+1}M_{21} = - \begin{vmatrix} 2 & 3 \\ 3 & 1 \end{vmatrix} = -(2 - 9) = 7$$

$$C_{22} = (-1)^{2+2}M_{22} = \begin{vmatrix} 1 & 3 \\ 4 & 1 \end{vmatrix} = (1 - 12) = -11$$

$$C_{23} = (-1)^{2+3}M_{23} = - \begin{vmatrix} 1 & 2 \\ 4 & 3 \end{vmatrix} = -(3 - 8) = 5$$

$$C_{31} = (-1)^{3+1}M_{31} = \begin{vmatrix} 2 & 3 \\ 2 & 1 \end{vmatrix} = (2 - 6) = -4$$

$$C_{32} = (-1)^{3+2}M_{32} = \begin{vmatrix} 1 & 3 \\ 2 & 1 \end{vmatrix} = -(1 - 6) = 5$$

$$C_{33} = (-1)^{3+3}M_{33} = \begin{vmatrix} 1 & 2 \\ 2 & 2 \end{vmatrix} = (2 - 4) = -2$$

$$C_A = \begin{pmatrix} -1 & 7 & -4 \\ 2 & -11 & 5 \\ -2 & 5 & -2 \end{pmatrix}$$

Jadi, adjoint A

$$\text{adj}(A) = (C_A)^T = \begin{pmatrix} -1 & 2 & -2 \\ 7 & -11 & 5 \\ -4 & 5 & -2 \end{pmatrix}$$

Penjelasan halaman 6 (ada ralat hasil).

Nilai $\det(A) = -3$ (lihat pertemuan 3)

$$A^{-1} = \frac{1}{\det(A)} \operatorname{adj}(A) = \frac{1}{-3} \begin{pmatrix} -1 & 2 & -2 \\ 7 & -11 & 5 \\ -4 & 5 & -2 \end{pmatrix} = \begin{pmatrix} \frac{1}{3} & -\frac{2}{3} & \frac{2}{3} \\ -\frac{7}{3} & \frac{11}{3} & -\frac{5}{3} \\ \frac{4}{3} & -\frac{5}{3} & \frac{2}{3} \end{pmatrix}$$

Penjelasan halaman 7

$$\operatorname{adj}(B) = \begin{pmatrix} 4 & -2 \\ -3 & 1 \end{pmatrix}$$

$$\det(B) = 4 \cdot 1 - (-3 \cdot -2) = -2$$

$$B^{-1} = \frac{1}{\det(B)} \begin{pmatrix} 4 & -2 \\ -3 & 1 \end{pmatrix} = \frac{1}{-2} \begin{pmatrix} 4 & -2 \\ -3 & 1 \end{pmatrix} = \begin{pmatrix} -2 & 1 \\ \frac{3}{2} & -\frac{1}{2} \end{pmatrix}$$