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Date _____

1. matriks $A = \begin{vmatrix} 1 & 4 & 5 \\ 4 & -3 & 0 \\ 5 & 0 & 7 \end{vmatrix}$ tentukan Det menggunakan kofaktornya

Jawab :

$|A| = a_{11} M_{11} + a_{12} M_{12} + a_{13} M_{13}$

$= 1 \begin{bmatrix} -3 & 0 \\ 0 & 7 \end{bmatrix} + (-4) \begin{bmatrix} 4 & 0 \\ 5 & 7 \end{bmatrix} + 5 \begin{bmatrix} 4 & -3 \\ 5 & 0 \end{bmatrix}$

$= -21 \quad (28 \times - 4) + (5 \times 15)$

$= -21 \quad -112 + 75$

$= -58$

3. a) $(f \circ g)(x)$

$f(g(x))$

$f((x-2)^2) = \sqrt{4 - 25}$

$f(x) = \sqrt{(x-2)^2 - 25}$

$\partial = \sqrt{(x-2)^2 - 25}$

$(x-2)^2 - 25 = 0$

$(x-2)^2 = 25$

$(x-2) = \pm 5$

$x_1 = 5 + 2 = 7$	
$x_2 = -5 + 2 = -3$	

b) $Df : x \geq 25$

$[25, \alpha)$

$Rf : [0, + \alpha)$

$Dg : (-\alpha, + \alpha)$

$Rg : (0, + \alpha)$

$d f \circ g = (-x_1, -3)$ atau $[7, + \alpha$

$R f \circ g = [0, + \alpha)$

5.) $f(x) = 3$

$f^{-1}(x) = \dfrac{x3}{x-4}$

$f^{-1}(f(x)) = x$,

$f(x) = 3$,

$f^{-1}(3) = x$

$\dfrac{3^2}{3-1} = x$

$3^2 = 2x$

$x = \dfrac{3^2}{2} = \dfrac{9}{2}$

Jadi : $x = \dfrac{9}{2}$

2.) $\quad 3x + 4y - 2z = 5$

$2x + y - 3z = 9$

$x - 5y + 2z = 7$

$\begin{pmatrix} 3 & 4 & -2 \\ 2 & 1 & -3 \\ 1 & -5 & 2 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 5 \\ 9 \\ 7 \end{pmatrix}$

$B_2 - 2B_3 = \begin{pmatrix} 3 & 4 & -2 & | & 5 \\ 0 & 11 & -7 & | & -5 \\ 1 & -5 & 2 & | & 2 \end{pmatrix}$

$3B_3 - B_1 \quad \begin{pmatrix} 3 & 4 & -2 & : & 5 \\ 0 & 11 & -7 & : & -5 \\ 0 & -14 & 8 & : & 16 \end{pmatrix}$

$\dfrac{14}{11} B_2 + B_3 \begin{pmatrix} 3 & 4 & -2 & | & 5 \\ 0 & 11 & -7 & | & -5 \\ 0 & 0 & -\dfrac{45}{11} & | & \dfrac{81}{11} \end{pmatrix}$

$11y \Rightarrow \left(-\dfrac{7}{5}\right) = -5$

$\boxed{y = -\dfrac{8}{5}}$

$3x + 4\left(-\dfrac{8}{5}\right) - 2\left(-\dfrac{9}{5}\right) = 5$

$\left(\overline{x = \dfrac{13}{5}}\right)$

$\boxed{x = \dfrac{13}{5}, \ y = -\dfrac{8}{5}, \ z = -\dfrac{9}{5}}$