No.

Date:

Nama: Ikhwan Fadhilah

Kelas: 1IA26

Npm: 51921603 - UJIAN MATIF LABTI

1. $A = \begin{vmatrix} 5 \\ 4 \end{vmatrix}$, $B = \begin{vmatrix} -2 \\ 6 \end{vmatrix}$

jawaban: $a+b = \begin{vmatrix} 5 \\ 4 \end{vmatrix} + \begin{vmatrix} -2 \\ 6 \end{vmatrix} = \begin{vmatrix} 3 \\ 10 \end{vmatrix}$

2. $A = \begin{vmatrix} -6 \\ 2 \end{vmatrix}$, $B = \begin{vmatrix} 8 \\ 5 \end{vmatrix}$

jawaban: $a-b = \begin{vmatrix} -6 \\ 2 \end{vmatrix} - \begin{vmatrix} 8 \\ 5 \end{vmatrix} = \begin{vmatrix} 2 \\ -3 \end{vmatrix}$

3. $A = \begin{vmatrix} 4 & 7 \\ 2 & 1 \\ 5 & 3 \end{vmatrix}$, $B = \begin{vmatrix} 5 & 2 \\ 0 & 3 \\ 6 & 4 \end{vmatrix}$, $C = \begin{vmatrix} 1 & 6 & 4 \\ 3 & 5 & 7 \end{vmatrix}$

jawaban:

a.) $a^T = \begin{vmatrix} 4 & 2 & 5 \\ 7 & 1 & 3 \end{vmatrix}$

b.) $a-b = \begin{vmatrix} 4 & 7 \\ 2 & 1 \\ 5 & 3 \end{vmatrix} - \begin{vmatrix} 5 & 2 \\ 0 & 3 \\ 6 & 4 \end{vmatrix} = \begin{vmatrix} -1 & 5 \\ 2 & -2 \\ -1 & -1 \end{vmatrix}$

c.) $C^T = \begin{vmatrix} 1 & 3 \\ 6 & 5 \\ 4 & 7 \end{vmatrix}$

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a.) $b^T - a^T = \begin{vmatrix} 5 & 0 & 6 \\ 2 & 3 & 4 \end{vmatrix} - \begin{vmatrix} 4 & 2 & 5 \\ 7 & 1 & 3 \end{vmatrix} = \begin{vmatrix} 1 & -2 & 1 \\ -5 & 2 & 1 \end{vmatrix}$

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Carilah determinan dari matriks-matriks

1. $B = \begin{vmatrix} 10 & 12 \\ 12 & 15 \end{vmatrix}$

Jawaban:

$\det B = (10 \times 15) - (12 \times 12)$

$= 150 - 144 = 6$

2. $C = \begin{vmatrix} 2 & 4 & 1 \\ 4 & -5 & 5 \\ 3 & -1 & 2 \end{vmatrix}$

Jawaban:

$C = \begin{vmatrix} 2 & 4 & 1 & 2 & 4 \\ 4 & -5 & 5 & 4 & -5 \\ 3 & -1 & 2 & 3 & -1 \end{vmatrix}$

$\det C = (2.(-5).2) + (4.5.3) + (1.4.(-1)) - (4.4.2) - (2.5.(-1)) - (1.(-5).3)$

$\det C = (-20) + 60 + (-4) - 32 - (-10) - (-15)$

$= (-40) + (-4) - 32 + 10 + 15$

$= -44 - 32 + 25$

$= -76 + 25 = -51$

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Carilah matriks invers

1. $A = \begin{vmatrix} 3 & 2 \\ 2 & 3 \end{vmatrix}$

jawaban:

$\det A = (3 \times 3) - (2 \times 2)$

$= 9 - 4 = 5$

$A^{-1} = \frac{1}{\det} \times adj$

$= \frac{1}{5} \times \begin{vmatrix} 3 & -2 \\ -2 & 3 \end{vmatrix}$

$= \begin{vmatrix} 3/5 & -2/5 \\ -2/5 & 3/5 \end{vmatrix}$

2. $B = \begin{vmatrix} 1 & 5 \\ 5 & 4 \end{vmatrix}$

jawaban:

$\det B = (1 \times 4) - (5 \times 5)$

$= 4 - 10 = -6$

$B^{-1} = \frac{1}{\det} \times adj$

$= \frac{1}{-6} \times \begin{vmatrix} 4 & -5 \\ -5 & 1 \end{vmatrix}$

$= \begin{vmatrix} 4/-6 & -5/-6 \\ -5/-6 & 1/-6 \end{vmatrix}$

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$$: \begin{vmatrix} 4/-6 & 5/6 \\ 5/6 & 1/-6 \end{vmatrix}$$

3. $C = \begin{vmatrix} 7 & 3 \\ 4 & 4 \end{vmatrix}$

jawaban:

$\det C = (7 \times 4) - (4 \times 3)$

$= 28 - 12 = 16$

$C^{-1} = \frac{1}{\det} \times adj$

$= \frac{1}{16} \times \begin{vmatrix} 4 & -3 \\ -4 & 7 \end{vmatrix}$

$= \begin{vmatrix} 4/16 & -3/16 \\ -4/16 & 7/16 \end{vmatrix}$

$= \begin{vmatrix} 1/4 & -3/16 \\ -1/4 & 7/16 \end{vmatrix}$