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TECMPN A
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classmate
Date
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Q3) b)

X	Y
10	43
39	13
19	32
23	21
28	20

$$\bar{x} = \frac{10 + 39 + 19 + 23 + 28}{5} = 23.8$$

$$\bar{y} = \frac{43 + 13 + 32 + 21 + 20}{5} = 25.8$$

Mean adjusted matrix A

$$= \begin{bmatrix} -13.8 & 17.2 \\ 15.2 & -12.8 \\ -4.8 & 6.2 \\ -0.8 & -4.8 \\ 4.2 & -5.8 \end{bmatrix}$$

$C = A^T . A$

$$= \begin{bmatrix} -13.8 & 15.2 & -4.8 & -0.8 & 4.2 \\ 17.2 & -12.8 & 6.2 & -4.8 & -5.8 \end{bmatrix} \begin{bmatrix} -13.8 & 17.2 \\ 15.2 & -12.8 \\ -4.8 & 6.2 \\ -0.8 & -4.8 \\ 4.2 & -5.8 \end{bmatrix}$$

$$C = \begin{bmatrix} 462.8 & -482.2 \\ -482.2 & 554.8 \end{bmatrix}$$

X and Y are negatively correlated because
$cov(x,y) = cov(y,x) = -482.2$