SMVS
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x	y
0	1
0.2	0.4
1	0
1	1

$\bar{x} = 0.55$ $\bar{y} = 0.6$

$$C = \begin{pmatrix} cov(x,x) & cov(x,y) \\ cov(y,x) & cov(y,y) \end{pmatrix}$$

$$cov(x,y) = \frac{\sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})}{n-1}$$

x	y	$x-\bar{x}$	$y-\bar{y}$	$(x-\bar{x})(y-\bar{y})$
0	1	-0.55	0.4	-2.2
0.2	0.4	-0.35	-0.2	+0.7
1	0	0.45	-0.6	-0.27
1	1	0.45	0.4	0.18

$cov(x,x) = 0.276$

$cov(x,y) = -0.53$

$cov(y,x) = -0.53$

$cov(y,y) = 0.24$

મુશ્કેલીથી ડરો નહીં, તેને ખસેડવાનો માર્ગ શોધો.

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$$C = \begin{bmatrix} 0.2766 & -0.53 \\ -0.53 & 0.24 \end{bmatrix}$$

$$C - \lambda I = 0$$

$$\lambda^2 - \text{Tr}(C)\lambda + \det(C) = 0$$

$$\lambda^2 - 0.5166\lambda + 0.214516 = 0$$

$\lambda_1 = 0.7886$, $\lambda_2 = -0.2720$

$$CV = \lambda V$$

$$\begin{bmatrix} 0.2766 & -0.53 \\ -0.53 & 0.24 \end{bmatrix} \begin{pmatrix} x_1 \\ y_1 \end{pmatrix} =$$

$$0.7886 \begin{pmatrix} x_1 \\ y_1 \end{pmatrix}$$

$$0.2766x_1 - 0.53y_1 = 0.7886x_1$$

$$0.2766x_1 - 0.7886x_1 = 0.53y_1$$

$$-0.5124x_1 = 0.53y_1$$

$$x_1 = -1.035y_1$$

$$= -1.035 \begin{bmatrix} 1 \\ y \end{bmatrix}$$

$$= \begin{bmatrix} -1.035 \\ -1.43y \end{bmatrix}$$

Vector x

$$X_1 = \begin{bmatrix} -0.7192 \\ 0.6949 \end{bmatrix}$$

$$= x * v$$

$$= \begin{bmatrix} 0 & 1 \\ 0.2 & 0.4 \end{bmatrix} \begin{bmatrix} -0.7192 \\ 0.6949 \end{bmatrix}$$

મુદ્દાની વાત નહીં, તેને પ્રશ્નોત્તરી માં પૂછો.

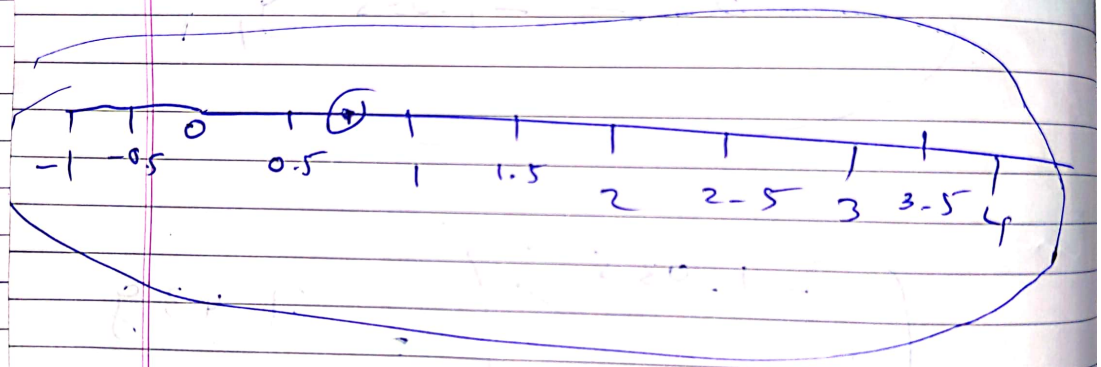
0.6949

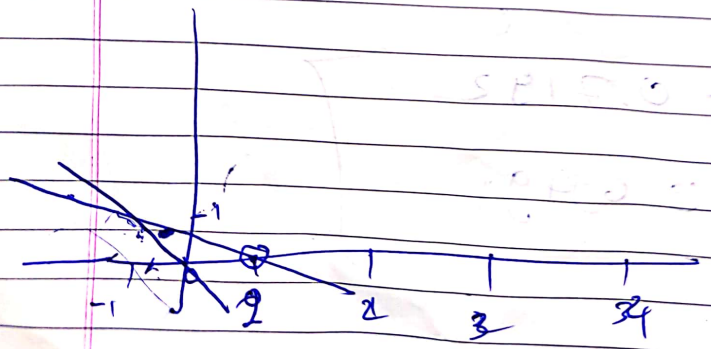
~~0.4216~~ 0.1341 2

~~0.1158~~ 4

-0.7192

-0.0243





$x_1(t) = -0.7192\,t$,

$y_1(t) = 0.6949\,t$.