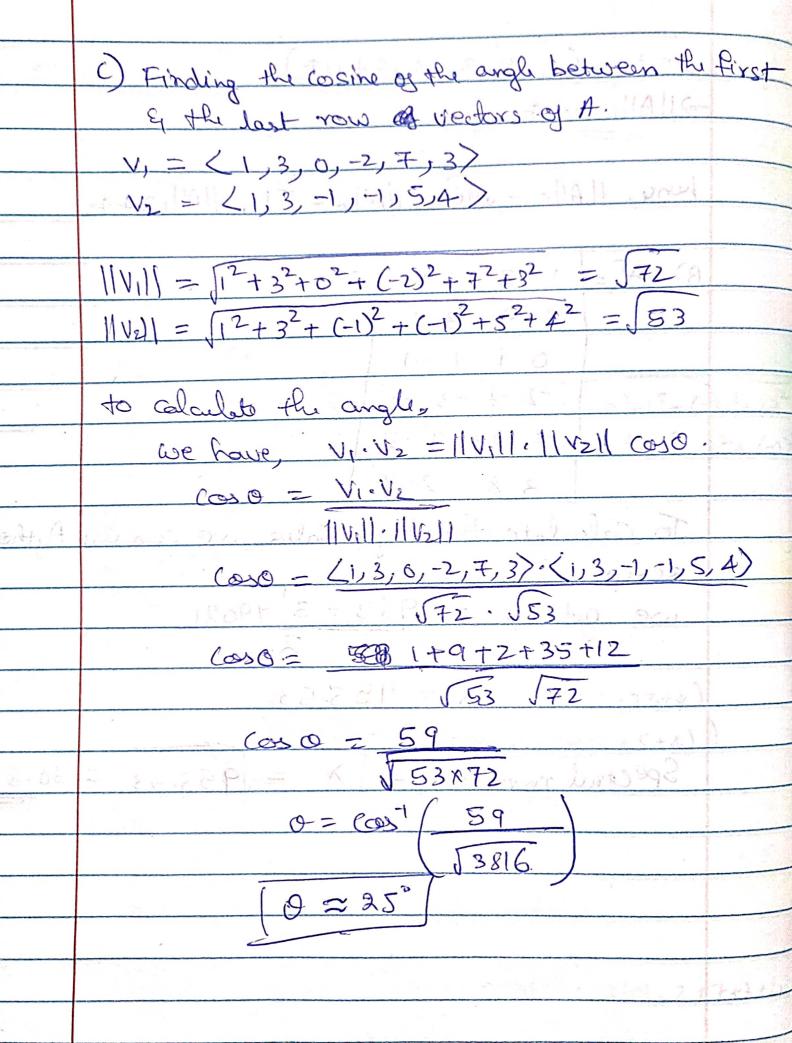
= Max (6, 18, 3, 14, 44, 17) => | | A| | = 44 hence, 1/All== Ja63, 1/All== 51, 1/All=44 B) AT = 1 3 = 195 / 10 A = 1111 3 9 33 To Calculate the Eigen Value, we can use Lython script.

we get $\lambda = 963 + 3\sqrt{99091}$ 2. 1775-571世祖 = 953-53 Spectral norm. 1/Allz = 57 = 1953.53 = 30.879



Given $x = (1, 2, 3, 4)^T$, $V = span_{\{1, -2, 2, 0\}}^T$, $(-1, 1, -1)^T$ }

A) Proj $V = x \cdot \vec{u}_1 \vec{u}_1 + x \cdot \vec{u}_2 \cdot \vec{u}_2$ $||u||^2$ $||u||^2$ $||u||^2$ $\frac{\times .0.12}{10211^2} \left(1,2,3,4\right) \left(1,-2,2,0\right) \qquad \left(1,-2,2,0\right)$ $=\frac{3}{9}(1,-2,2,0)$ $\frac{200}{100} = \frac{1}{200} = \frac{$

B) To find the projection matrix that performs above projection. Projection matrix P = A. (AT.A). AT $u_1 = (1, -2, 2, 0)^T$ (Span of A $u_2 = (2 - 1, 1) (1, -1)^T$) ATA = ATA = 4/35 /35. $A (ATA^{-1}) = \begin{bmatrix} 1/35 & 9/35 \\ -1/5 & 1/5 \\ 9/35 & 11/35 \end{bmatrix}$ 0-1/35 -9/35 $P = \frac{11/35}{-2/5} - \frac{2}{35} = \frac{8}{35}$ $-\frac{2}{5} = \frac{3}{5} - \frac{1}{5} - \frac{1}{5}$ $-\frac{2}{35} - \frac{1}{5} = \frac{29}{35} - \frac{11}{35}$ $\frac{8}{35} - \frac{1}{5} = \frac{-11}{35} = \frac{9}{35}$

c) Finding distance of vector x from subspace V, distance = $\left[\left(\frac{1}{2}x - pxojection(x, u)\right)\right]$ $=\left[\left(\frac{1}{2}x - pxojection(x, u)\right]\right]$ $=\left[\left(\frac{1}{3}x - \frac{2}{3}x - \frac{2}{3}x$

