

VERLY

30/11/18
2018 1279

Question 1

$$at^2 + bt + c$$

$$c = 12$$

$$\begin{cases} a \cdot 1^2 + b \cdot 1 + 12 = 13 \\ a \cdot 2^2 + b \cdot 2 + 12 = 19 \\ a \cdot 3^2 + b \cdot 3 + 12 = 34 \end{cases}$$

$$\Leftrightarrow \begin{cases} a + b + 12 = 13 \\ 4a + 2b + 12 = 19 \\ 9a + 3b + 12 = 34 \end{cases}$$

VERDY
JONAH
20181279

Question 2

$$A = \begin{pmatrix} 1 & 4 & 5 & 2 \\ 3 & 2 & 3 \end{pmatrix}$$

$$\vec{m} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$$

$$\vec{m}_{31} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$$

$$L = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$\vec{m}_{31} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$$

VERLY
JONAH
1279

$$A = \begin{pmatrix} -1 & 0 & 2 \\ 0 & 2 & 2 \\ 1 & 2 & 2 \end{pmatrix} \quad \lambda I - A = \begin{pmatrix} \lambda + 1 & 0 & -2 \\ 0 & \lambda - 2 & -2 \\ -1 & -2 & \lambda - 2 \end{pmatrix}$$

Question 3

rank of $A = 2$.

$$(A - \lambda I)$$

$$= \begin{pmatrix} -1-\lambda & 0 & 2 \\ 0 & 2-\lambda & 2 \\ 0 & 2 & 2-\lambda \end{pmatrix}$$

$$\det = (-1-\lambda)(2-\lambda)^2 - 4 = (-1-\lambda)(\lambda^2 - 4\lambda + 4) - 4$$

$$= (-1-\lambda)(\lambda^2 - 4\lambda + 4) - 4$$

$$= (-1-\lambda)(\lambda^2 - 4\lambda + 4) - 4$$

$$\lambda_1 = -1$$

$$4\lambda - \lambda^2 = 0$$

$$\Delta = 16$$

$$\sqrt{\Delta} = 4$$

$$\lambda = \frac{-4 \pm 4}{2} \quad \lambda_1 = -1$$

$$\lambda_2 = 0$$

$$\lambda^2 = 4 \Rightarrow \lambda = \pm 2$$

